VOLUME XV NUMBER 5

THE ELEMENTARY SCHOOL JOURNAL

CONTINUING "THE ELEMENTARY SCHOOL TEACHER"

JANUARY 1915

EDUCATIONAL NEWS AND EDITORIAL COMMENT

Chicago Dinner

The Department of Superintendence holds its annual meeting in Cincinnati during the week of February 22. A number of affiliated societies will meet with the general organization. This *Journal* takes the opportunity of announcing to all former students and graduates of the University of Chicago that there will be a Chicago dinner early in the week of the meeting. A special announcement of the place and time of this dinner will be posted in the hotels and places of meeting. Information can also be secured by writing directly to the University before the date of the meeting itself.

Boston Department of Educational Measurement

The first output of the Department of Educational Investigation and Measurement of Boston has appeared as School Document No. 8, under the title, *Provisional Minimum and Supplementary Lists of Spelling Words for Pupils in Grades I to VIII*. This document emphasizes the significance of the general movement which is going forward in a number of the large cities of this country where bureaus of research are being organized as part of the office of superintendent of schools. The document further shows how scientific investigations can be made of immediate use to the school system. The first part of the pamphlet contains a summary of investigations on

spelling made in the Boston schools. The second part contains lists of words which are to be used in the different grades as spelling lessons. This fortunate combination of scientific work and practical suggestion is encouraging both to students of science who are interested in seeing the plan of investigation through the office of superintendents succeed, and also to teachers who are looking for practical results from the work of these bureaus.

How Superintendents Are Made

We shall depart from our common practice of giving explicit information as to the source of a news item and print with names omitted a quotation from a city daily. The reason for printing this news note in this fashion is that it calls attention to a situation so common that the omission of names renders the news note interesting as a statement of a very general condition in the public schools of this country. Why superintendents should be willing to accept positions under conditions like those described in this clipping when a little cooperative organization would tend to clear up the situation is a continual source of surprise to anyone who is in contact with school people.

WILL THE HANDS OF THE NEW SUPERINTENDENT BE FREE?

For the first time in many months the Board of Education seemed to reach a point Saturday night when its members were agreed. By a unanimous vote they selected a superintendent who will begin his duties shortly. The loud praises the members of the board have for the new man would indicate that they believe they have found a superintendent who, like Mr. ———, understands his business.

Mr. ——— comes with fine recommendations. His experience has been extended for a man of forty. He should be able to do much for bettering the standing of ——— schools, the rejuvenation of which was started by Mr. ———. Owing to the fact that the latter was determined to manage the schools, to pass upon the ability of the teachers in the schools, and that, despite the chance of losing the support of some of the members, he continued to follow a course which was contrary to their wishes, he lost his position. Under this trying situation Mr. ——— steps in. If he has the make-up of a genuine superintendent he will not permit himself to be dictated to by members of the board, not one of whom is an expert in educational matters.

The old board members made the error, considered hurtful to the welfare of the schools, of thinking that after they hired a superintendent they could

dictate to him as to how the schools should be managed. The position the board took was contrary to custom in other cities. A superintendent of schools is supposed to be a manager, and not a piece of dough in the hands of a school board. If the present board is made up of the same class of material as the old board, with ideas of the same sort, Mr. ——— can figure at the outset that he is going to have a hard row to hoe just as soon as he clashes with the ideas of the members of the board. If Mr. ——— finds the new board of the same caliber as the old, it is hoped he will not play policy in order to make a good fellow of himself and retain his job. He will not be serving the people of ——— as he should if he pursues that course.

All of the members should give Mr. ——— a free hand to raise the standard of the schools of ———. If he is the man for that purpose, as the members say he is, they will not follow the policy of dictating to him or hampering him when he has an idea of his own to develop to the advantage of the school system.

Indiana State Teachers' Association

The reorganization of state teachers' associations is going forward very rapidly. A number of these associations have organized themselves as corporations. Some have permanent secretaries to take care of the interests of teachers in the state. The following resolutions adopted by the Indiana State Teachers' Association, together with the notes of the committee reporting on the plan, present one case of a reorganization under the district plan:

WHEREAS, The scientific study and investigation of educational problems has become a necessity, and

WHEREAS, The multiplicity of larger meetings which we now have does not furnish adequate opportunity for such study, therefore be it

Resolved, That we adopt the following

PLAN OF ORGANIZATION OF THE STATE TEACHERS' ASSOCIATION

A. STATE MEETING

That a two-day meeting of the Association be held annually in the city of Indianapolis in the month of October.

1. The first day and the first evening to be given to section meetings. The main purpose of these meetings to be the presentation and discussion of reports of work done under the district organization, as indicated below (B 1).

These sessions to give wider opportunity for discussion and criticism of the field work being done in the different districts; to secure state organization of the field work on a given problem; and to prevent unnecessary duplication.

2. The sessions of the second day and of the second evening to be general sessions and the speakers to be selected on account of extraordinary ability in

their respective lines of educational investigation, study, or accomplishments. The purpose to be the broader consideration of educational topics of general interest.

B. DISTRICT MEETINGS

1. The state to be divided into districts, using the present congressional districts as nearly as may be practicable; the teachers of each district, in so far as their interests incline them, to organize for the study of specific problems in education. Such study to be carried on during the school year by individuals or groups in co-operative investigation or experiment.

2. A district meeting to be held annually, preferably in late spring, for the purpose of hearing and discussing reports; for the discussion of new specific topics and the setting and assignment of new problems for study. This annual meeting to furnish a "clearing-house" opportunity.

3. Reports of studies, research, etc., when approved by a committee to be appointed by the State Association, to be recommended for publication and distribution by the State Association.

Also be it further

Resolved, That as a part of this plan the General Association appoint each year a Committee on Resolutions, whose duty shall be to report at the next annual meeting on any needed change in, or additions to, the Association's policy or principles; to present larger problems that concern the Association; to study the larger work and welfare of the Association. This committee to consist of five members of the Association.

COMMITTEE'S NOTES ON THE PLAN

1. The plan here proposed is made for the one purpose of giving opportunity for co-operative, systematic, and scientific study of education.

2. Several returns objected to the "district" plan because not all teachers are interested in scientific investigation and experiment. This is also the view of the committee. The idea of the district meeting is to break the body of teachers of a district into small working groups, each member of each group to be present at the meeting because of his genuine interest in the specific problem of his group. By this system of grouping, the teachers grade themselves by interest and ability. It is even desirable that the groups in very many instances should be small, so that the group may form a more effective working body.

3. The "district" lines are not meant to be rigid. The congressional districts are used because such division gives groupings of fair size for working bodies, and because it is the most satisfactory division the committee could devise.

Reorganizing Institutes

The Superintendents' Association of Indiana, working on the problem of the county institutes, plans to render these institutes more systematic by having a textbook which shall be assigned early in the year and shall be made the subject of study on the part of the teachers before they come to the institute. The plan, as adopted by the superinten

ents, is too long to print in full. Certain of its essential elements, however, can be briefly outlined by quoting the following paragraphs:

PLAN OF PROCEDURE

1. The textbooks should be purchased and at least carefully read before the week of county institute.

2. The instructor should furnish to each teacher, on the first morning of the institute, outlines of the week's work, the outlines to be based on the books chosen.

3. In following the outline of the text dealing with general principles, discussions should be given before the institute as a body, for economy of time, if nothing more.

4. If possible, these general lectures should be followed by section meetings, in which specific and practical application of general principles to the problem in hand is made. This is perhaps best accomplished, generally, by lectures and conferences.

5. If possible, there should be an examination and correction of notebooks at the end of the week, not for the purpose of grading, but to help the teachers.

6. During the year following this work in institute the teachers should make systematic study of the problems from the texts and notes, and in connection with their actual school work.

Efficiency in City Schools and Rural Schools

The State Department of Education of New Jersey has been conducting tests on the relative efficiency of school children in the cities and rural districts of that state. The following quotation from *Educational Bulletin*, Vol. I, No. 3, together with the comments of explanation from the Commissioner's office, throw a good deal of light on the condition of rural schools. The table which is referred to in the text is not quoted in full because of its length. The facts, however, come out in the brief summaries which are given in the quotation:

The table shows that in every subject in which eighth-grade pupils were tested pupils in cities made uniformly higher averages than pupils outside of cities.

For example, in arithmetic more than 42 per cent of city pupils received 90 points or more, and in the territory outside of cities only a little more than 34 per cent received 90 points or more. On the other hand, of those who received 69 points or less in arithmetic 22 per cent were in the territory outside of cities and only 17 per cent in cities.

Even in spelling the city pupils outranked pupils in country schools. In the cities more than 65 per cent received 90 points or more, whereas only

51 per cent in the territory outside of cities received 90 points or more. Of the pupils who received 69 per cent or less in spelling less than one-half of 1 per cent were in cities and about 1 per cent in the territory outside of cities.

How may we account for these differences in the results obtained by pupils in city schools and those in the territory outside of cities? There are, of course, many good teachers in the rural schools. The differences in results noted cannot be explained by difference in the natural ability of the children. How, then, can this difference be accounted for?

It is believed that the answer is found in the differences in school opportunity that children have. The plain fact is that some of the rural schools suffer from the following causes:

1. Poorly equipped and poorly trained teachers.
2. Too frequent changes in teachers. More than half the teachers in one-room schools in some counties are changed every year.
3. Poor attendance. In too many schools attendance is not only irregular, but there is much unnecessary and prolonged absence. No teacher can teach the children if the children are not in school.
4. In ungraded schools the teacher has too many classes to teach.
5. In many schools there is a sad lack of equipment and apparatus for teaching.
6. There is often a lack of enthusiasm and interest in the smaller schools which is found in larger schools.
7. Lack of adequate, helpful, constructive supervision of instruction for those teachers who need it most. The county superintendent cannot give an adequate amount of supervision.

The Oakland Bureau of Research

The following extract from a letter written by the director of the Bureau of Information, Statistics, and Educational Research of Oakland, California, describes the progress of research under the direction of this Bureau:

I believe that the most important thing the Bureau has accomplished since its organization is the interesting of the principals of the city in the scientific study of school problems.

The elementary-school principals of the city have organized themselves into a Principals' Study Club and have adopted as their program for the year the study of the subjects of the school curriculum. It is their opinion that the prime function of the school principal is supervision, and so they are going to try to find out what a principal ought to know concerning each school subject.

The first subject to be studied was spelling. They have reviewed all of the best literature on the subject, have had reports on leading experimental studies, and have conducted some studies of their own. The final culmination of the plan was the undertaking of a wholesale study of the teaching of the subject throughout the city, the various factors involved, and a number of other

matters which will be used as a basis for investigating the other school subjects in the various schools. For their direction in this work, they secured the services of Professor J. B. Sears of Stanford University.

Professor Sears donates his time to the city, and uses the city as a sort of laboratory for his students who are studying various phases of education. The data gathered together in the Oakland spelling test have been divided up into several minor studies, each of which has been assigned to a student who is interested in that particular phase of the problem. Twenty-five students came up from Stanford, a distance of nearly 50 miles, on the day of the test to see that the conditions were kept as uniform as possible. The School of Education of the University of California also co-operated, nearly forty students from this institution donating their services on the day of the test.

We hope soon to have some results for publication.

Universities and Rural Schools

The State University of Missouri has a fund of $10,000 which it is spending in attempting to give the boys and girls in the rural common schools of that state as much advantage from the agricultural work at the state university as it is possible to supply with this fund of money. An officer has been appointed by the state university, whose business it is to organize throughout the state various clubs and associations and to supply the children of the rural schools with as much reading-matter and concrete material as can be sent out from the university.

This is another example of the way in which the great universities of this country are accomplishing the purpose which was explicitly adopted by the University of Michigan at the time of its organization, when this institution declared its purpose of becoming a part of the common-school system of the state. If more institutions would realize that the interests of the university are rooted in the common schools as well as in the high schools, great advantage would come to the whole school system and the university itself.

Junior High-School Courses

A circular issued by the Bureau of Education gives in full the recently adopted program of studies for the public schools of Oakland, California. This program is worth reproducing because it shows very definitely the tendency which has been commented on before in the *Journal* toward the introduction into the elementary schools of a program which shall modify radically the work of the upper grades. The

large amount of elective work which is provided in the seventh and eighth grades of the Oakland schools by this new program is distinctly in keeping with the movement going on all over the country to develop junior high schools.

The following time schedule in hours per week has been adopted recently in the schools of Oakland, California:

Subjects	Grade							
	1	2	3	4	5	6	7	8
English and penmanship	15	15	15	10	9	9	5	8
Arithmetic	2	3	5	5	5	5	3	3
History and geography	.....	.....	.....	5	5	5	5	5* 2½†
Nature-study, physical training, and hygiene	1	1	1	1	1	1	.....	2½‡
Music: Vocal, or band, or orchestra	2	2	2	2	2	2	2	2
Drawing	1	1	1	1	1	1	2§ or 5	2§ or 5
Manual training	1	1	1	1	2	2	2§ to 10	2§ to 10
Science	.....	.....	.....	.....	.....	.....	5§	5§
Literature, or Latin, or French, or German, or Spanish, or Italian	.....	.....	.....	.....	5‖	5‖	5§	5§
Typing	.....	.....	.....	.....	.....	.....	.....	5§
Unassigned	3	2	.....	.....	.....	.....	.....	.....
Total	25	25	25	25	25 or 30	25 or 30	25 or 30	25 or 30

* First term, history and geography. † Second term, civics. ‡ Second term.
§ Electives 10 or 15 hours, to be chosen from subjects marked §.
‖ Modern languages, elective, at present offered only in the university school.

We are very glad to give currency to the following communication, which comes from the National Child Labor Committee with the plea that it be published in the *Journal:*

Child Labor

The first social Sunday in the New Year is Child Labor Sunday, which has been observed for the past eight years, and which falls in 1915 on January 24. In issuing its appeal for the observance of the day the National Child Labor Committee refers to the fact that nearly half of all the children ten to thirteen years of age in three southern states are at work instead of in school. In spite of the rapid progress in legislation between 1900 and 1910, the Thirteenth Census reports that nearly 100,000 children ten to thirteen years of age were at work in non-agricultural

occupations throughout the country in 1910, or considerably more than half of the number of such working children in 1900.

One of the Committee's investigators this fall found in a North Carolina mill two little spinners whose grandmother said that they were six and seven years old, and scores of older children at work below the legal age limit, which is thirteen years in that state. Canneries in New York state have persisted in violating the child-labor law, because the state Department of Labor has found it impossible to get judgment in local courts against canners who employ small children. Moreover, there are still six states in the Union with no fourteen-year limit whatever for children at work in factories, six states with no compulsory school attendance law, and fifteen states whose fourteen-year limit for factories is practically nullified by exemptions.

For these reasons, and others, the National Child Labor Committee is asking that special attention be given on Child Labor Day to the Palmer-Owen bill now pending in Congress. It has been favorably reported by the House Committee on Labor, so that it is on the House Calendar for the present session, and there is reason to hope that it will also come to a vote in the Senate. This bill, which has received the indorsement of prominent men of all political parties, proposes a fourteen-year age limit in all factories, mills, canneries, and workshops manufacturing goods for interstate commerce; an eight-hour day and no night work for children fourteen to sixteen years old in the same occupations; and a sixteen-year limit for mines and quarries.

But besides working for the Palmer-Owen bill, the Committee is continuing its campaign for improved state laws, since the federal bill contains only the basic standards and, moreover, cannot regulate those forms of child labor in which interstate commerce is not involved. The Illinois law, for instance, already contains the four provisions of the federal bill, but allows boys of sixteen to work as night messengers, and has no age limit whatever for boys and girls in other street trades; while immigrant children of fourteen may go to work without a knowledge of English, provided they can read and write in their native tongue. Iowa does not require work permits at all, but throws the burden of proving the child's age upon the employer. Maine and West Virginia have a 14-year limit for factories but not for stores, and no higher age limit for the commonly specified dangerous occupations.

Other state laws have similar defects, which can be regulated only by the states themselves. The National Child Labor Committee will try to secure improved child-labor laws in fifteen states this year, and believes that the 12,000 clergymen, school superintendents, and teachers from every state in the Union who co-operate in the observance of Child Labor Day are among its most powerful allies in securing legislation, whether state or federal. Those who wish to observe Child Labor Day in their churches or schools can obtain literature on the subject, free of charge, from the National Child Labor Committee, 105 East 22d Street, New York City.

EDUCATIONAL WRITINGS

Educational reform is of two types. There is one type of reform which grows out of a violent discontent with existing institutions. Authors of such reforms usually believe that anything is better than that which is now at hand, and they make radical changes with easy consciences, contending that they can improve matters whatever they do. Such reformers usually learn a great deal by their experiments.

The second type of reformer is one who makes a careful, sympathetic study of existing institutions and, building together all that he can find of excellent practices, devises a coherent plan of organization. Such a reformer usually accomplishes more in the long run than his more radical brother.

Professor Cubberley[1] is a reformer of the second type. He has allowed himself the freedom which comes from describing an imaginary state, the state of Osceola. Here he has been of enough influence to secure the adoption of a new and ideal school code. The code or constitution describes the organization of the school system from the state board to the classroom teacher. The schoolhouses are described, and all of the supplementary agencies for vocational education and training of all the people in matters of health and labor are provided. As one reads these laws of Osceola one sees the influence of existing institutions. The system has a state university, for example, which serves the rest of the system in the way that our better state universities are now doing. One finds reading circles for the carefully certificated teachers. One finds provision for increasing state funds and for their distribution on an equitable basis. One finds statutes bringing into the state system those private educational agencies which have always played a large part in the education of American children.

It is well for the individual teachers as well as for the administrative officer to look into such a book as this, for after all the

[1] *State and County Educational Reorganization.* By E. P. Cubberley. New York: Macmillan, 1914. Pp. xx+257.

work of a single classroom is very intimately dependent on the system to which the class belongs. Some teachers think of the state system as remote and unfriendly, administering examinations and now and then conferring some distant benefit. It is encouraging and illuminating to see in an ideal organization how the central authority can come into helpful contact with all who are involved in the educational system.

The original form of the New York City Survey is not available for common use in the schools. It is well, therefore, that an independent publishing company has undertaken to give to teachers and superintendents the results of the New York Survey. The World Book Company is publishing under the title *School Efficiency Series*, under the editorship of Professor Hanus, a series of books which are virtually reprints of the New York report with some elaborations by the authors of the different sections. We have several such volumes now in hand; some have been incidentally mentioned in earlier connections. *The School Training of Defective Children*,[1] by Professor Goddard, is an interesting statement of the work done in New York City and recommended for other school systems in ungraded classes and classes for children who are below the normal in mental development. The kind of work that ought to be undertaken in these classes and the way in which they should be organized to advantage are set forth on the basis of the concrete examples of New York experience.

Another number of this series, namely, *Elementary School Standards*,[2] by Professor McMurry, is sympathetically reviewed by Professor Paul J Kruse, of the University of Washington. We are very glad to present his review as follows:

> The title is not misleading. The author has set up some standards for the testing of the efficiency of instruction, course of study, and supervision in the elementary school. He applies these standards to the New York City schools, showing wherein those schools fail to measure up to the standards,

[1] *The School Training of Defective Children*. By Henry H. Goddard. (School Efficiency series, edited by Paul H. Hanus.) Yonkers-on-Hudson: World Book Company, 1914. Pp. x+97.

[2] *Elementary School Standards*. By Frank M. McMurry. (School Efficiency series, edited by Paul H. Hanus.) Yonkers-on-Hudson: World Book Company, 1914.

and offers recommendations for improvement. However, the usefulness of the standards is not limited to the New York schools; but, as Professor Hanus says in the editor's Preface, "His formulation of the standards on which his judgments are based and his detailed descriptions of the application of those standards to the actual work of the schools will be useful, we believe, to earnest teachers everywhere. Professor McMurry did not attempt to make the standards all-embracing, but they are so fundamental to satisfactory plans and procedure in elementary school work that, whatever limitations as to scope and variety they may possess, all good elementary schools must conform to them. Further, they point the way to progressive improvement where improvement is desirable." That the New York City schools did not show up well when measured by these standards does not necessarily carry with it the conclusion that they are less efficient than the schools of other large cities, but rather that they are less efficient than they should be and might be, a condition not peculiar to New York City.

In a brief discussion of standards in general the author proposes the principle that: "Purposes in any field of activity should be the standards of value in that field." He assumes therefore, "that the leading purposes of instruction must form the basis for judging its quality." As to what the aims of instruction are, the conclusion reached is that as "the more immediate purpose of instruction must be to impart the knowledge and power and to form the habits that determine a well-ordered daily life, we must look directly to the life about us to find what subject-matter the school should offer and how this should be treated."

The following four factors are selected as aims of school instruction: (1) motive; (2) consideration of values; (3) attention to organization; (4) initiative. It is granted by the author that these are not all-inclusive, the only claim being that they are universal and "sufficient to test the general effectiveness of teaching." The value of these standards is urged especially as tests of habits formed, of thoroughness of knowledge, of instruction in the three R's, as sources of suggestion for improvement, and as tests of the curriculum. Two planes of instruction are recognized: the higher, on which facts are comprehended as means—efficiency on the part of the pupils being the goal; and the lower, on which comprehension and retention of facts and mechanical skill are the ends to be attained.

The book is divided into three parts dealing, respectively, with Standards and Instruction, Course of Study, and Supervision. In the first section, after four chapters devoted to a statement of the standards, an exposition of their value, and an explanation of the method of applying them, follows a chapter on the standards to particular recitations. This is one of the most interesting and valuable chapters in the book. It is a real study of actual recitations.

In the section on Course of Study the author applies the same standards, testing the curriculum and syllabi for the various subjects as to provision for motive, organization of subject-matter, consideration of relative values, and

provision for individuality. He definitely recognizes that "probably no curriculum in existence ideally meets any one of the four tests we have employed," but maintains that "it is, therefore, their partial successes and the endeavor they show to achieve such successes that make the distinction between acceptable curricula and those that should be condemned."

The author's treatment of Supervision is based upon the proposition that the principal's "main relationship as an educational leader is to his teachers, and the influence that he exerts upon them in kind and degree is the chief measure of his worth to the school." He points out that the principal should be "working for the same ends as the classroom teacher," but that his pupils are the teachers themselves. Therefore he is to be judged by the same standards as the teachers. The author assumes that the principal's time will not be devoted to clerical work, but that he is really a supervisor of teaching.

The book will undoubtedly be of great value to teachers, principals, superintendents, and all students of education who are concerned with the actual work in the schoolroom. It helps the teacher to test his work in a very definite way, and it certainly, if wisely used, will aid the supervisor in his efforts to detect and correct the bad and to recognize and give due credit for the good in classroom work. It is such a book as many have been looking for, and for those who do not expect more of it than the author claims for it the book will be a real help. It should be read and studied by every teacher who wants to improve his work.

It should be said that Professor Kruse's sympathy for the McMurry report is hardly shared by the New York people themselves. A very interesting document entitled *Reply of the Superintendents*[1] gives an account of the attitude of the New York superintendents toward various parts of the New York report. The reply is directed in the main to the two reports issued by Professors Elliott and McMurry.

Professor McMurry comes in for a large part of the discussion. The discussion becomes very personal at points, it being the belief of the superintendents that they must in some way explain why their critic has the confidence of school people in general while they cannot accept his standards. On p. 35 they say, "It is not his four standards or characteristics of good teaching, which he only recently invented for the purpose of testing our schools. Professor McMurry *is* his method, just as Socrates was his method, as every artist teacher is his method." This quotation from the

[1] *Reply of the Superintendents.* Prepared by a Committee. Edited by Joseph S. Taylor, Ph.D. New York, 1914. Pp. 116.

Reply of the Superintendents seems to us to exhibit concretely the difficulty in the whole matter. Professor McMurry did not succeed in making his standards sufficiently objective and impersonal to convince the school population of New York City, and those teachers demand, not that there shall be the judgment of a single individual on the efficiency of their work, but that there shall somehow be the kind of objective definition of what is wanted that will make it unnecessary for a teacher to appeal to any authority for confirmation of his procedure.

In this respect Mr. Courtis' book which is to be a part of this series, setting forth his tests on arithmetic, is more convincing by far than any of the other sections of the report. It is interesting to note that no one seems to deny what Mr. Courtis says in his report. That may be due in part to the greater intellectual effort necessary to prepare one's self to discuss that report, or it may be due—and we think it is—to the objective character of his results.

Three books have appeared which may be grouped together because they deal in a general way with the training of children in reading and in general oral exercises. The first[1] is a summary of the various methods of teaching reading and a brief discussion of the theoretical problems related to their methods. Mr. Klapper has brought together a statement of the various methods employed in teaching primary reading and has added a few chapters on reading in intermediate grades and the methods of teaching a literary masterpiece. The review of primary methods is preceded by a brief study of the hygiene and physiology of reading and the psychology of reading. The introductory chapters, as the author says in his Preface, are intended not as profound studies of the subject, but rather as introductory discussions suitable for the teacher who is interested in an elementary way in matters of method. The review of different methods will be gladly received by students of education as well as by teachers, because there is such diversity in the methods of dealing with primary reading that a summary of these different methods is always acceptable.

[1] *Teaching Children to Read*. By Paul Klapper. New York: D. Appleton & Co., 1914. Pp. 213.

We shall devote our own attention, so far as a critical discussion of the book is concerned, to those chapters which aim to deal with the methods of teaching reading in the intermediate grades. Here Professor Klapper seems to be very conscious of the fact that there is a distinction between oral reading and silent reading and that this distinction ought to be recognized by the intelligent teacher. It is interesting to note, however, that all of the positive suggestions which he has to make with regard to methods refer primarily to the oral method, although he recognizes the fact that the oral method is by no means the only method that ought to be cultivated. When it comes to cultivating silent reading, Professor Klapper is almost helpless. He recommends that children be encouraged to read at home, but there is no detailed statement of the methods that ought to be employed in making these children efficient readers. They ought, as he recognizes, to read more rapidly than they do. He quotes Huey and other earlier writers and recognizes in his argument that there is much to be said regarding the limitation of oral reading exercises, although in the main his argument is in favor of the continuation of that sort of work.

Furthermore, during this critical intermediate period of school life Professor Klapper would have a continuation of the sort of literary reading which is now common, and there is very little evidence that he has made a study of intermediate children which would suggest to him the desirability of bringing in a large body of material that is not like that which is to be found at the present time in ordinary reading books.

It is to be regretted that books of this type simply review practices and do not subject them to careful, constructive criticism. Anyone who is acquainted with the work of schools will agree very heartily with the comment that is made by Professor Klapper in various places that the reading of the upper grades is a blank failure, but why it is a blank failure he does not seem to be able to tell us, and he certainly does not give us the formula by which we could improve the reading, for his suggestions are of the conventional type.

The second book, dealing in an entirely different way with the problem, is a book entitled *Literature for Children*.[1] This book, after giving a brief introduction discussing the desirability of learning lyric poetry as an important branch of literature in the school, devotes something like one hundred pages to the repetition of familiar extracts of poems which are to be committed to memory. The only value in such a collection as this is that it makes the material easily accessible to teachers who are unwilling to look up the references that are always at hand in any school. Furthermore, the emphasis upon poetry is from many points of view open to criticism. Why should children, if they are going to learn English by heart, be confined to poetry? It is so much more important that they should get standard prose forms, and yet in the main their work of memorizing is always turned in the direction of poems just because these are a little easier to remember.

There follow a few discussions on the owning of books and the desirability of reading books and finally we find from p. 239 on about fifty pages of bibliography which is the best part of the book. This bibliography turns the attention of teachers to a number of good references that might be used. The criticism which suggests itself here again is that the author has confined himself almost exclusively to pure literature. Anyone who knows the elementary school realizes that there is a very large demand for another type of reading-matter, and teachers need suggestions with regard to this other type of reading-matter so sorely that it seems a waste of time and energy to pile up again and again the references of pure literature.

Finally, in this connection attention may be called to *Morning Exercises for All the Year*.[2] This book is a miscellaneous collection of various kinds of material. Possibly the best part of this book is the bibliography at the end which makes it possible for teachers to look up reference material that will serve their purposes. There

[1] *Literature for Children*. By Orton Lowe, Assistant Superintendent of the Allegheny County, Pennsylvania, Public Schools, New York: Macmillan, 1914. Pp. 298.

[2] *Morning Exercises for All the Year*. A Day Book for Teachers. By Joseph C. Sindelar. Chicago: Beckley-Cardy Co., 1914. Pp. 251.

is in this present volume such material as brief accounts of Benjamin Franklin and James Watt, some stories about care of animals and about manners, exhortations to industry and cheerfulness. Extracts of poems are distributed throughout the book suitable to reinforce the teachings of the stories.

The morning exercise is an important part of school work and undoubtedly a volume of this sort will suggest sources of material to teachers. It would be a great pity if most of the exercises should dominate the morning exercise. The danger of having in hand easily accessible material of this kind which has been collected by somebody remote from the actual situation in which the leader of the morning exercise finds himself is the common danger which always threatens human beings of doing the easy rather than the productive thing. There is grave danger that such exercises will become purely formal. On the other hand, the variety which the book supplies may in some measure compensate for the dangers of formalism. The material is at least suggestive. Again we call attention to the fact that most of the work is of a strictly conventional type. There is no suggestion here that it would be a good thing to give children vocational guidance in the morning exercise. There is no suggestion here that the problems of local social organization or civic life might serve as the best possible type of morning exercise. Indeed the morning exercise can be made so fruitful by the ingenious teacher that the type of suggestion which comes from the inspection of a book of this kind is to be criticized rather than praised.

It has sometimes been assumed that motives of work are natural, that all one has to do is to expose children to things and they will be impelled to productive activity. It is interesting, therefore, to note a title[1] which emphatically calls attention to the fact that motives must be trained. The yearbook which appears under this title serves also to emphasize another fact: Expression includes reading and composition. There is grave danger in these days of trade training and manual work that some will think of academic courses as passive or receptive.

[1] *Expression as a Means of Training Motive.* Third Yearbook of the Francis W. Parker School of Chicago. Published by the Faculty of the School. Pp. 188.

The description supplied by the authors gives the following summary of the book:

> The present volume contains a general introductory article on expression in school work and its intimate relation to motive; an article on children's play as fundamental in education; one on oral reading; one on imaginative writing in school; one on the utilization of the dramatic instincts on the part of children in school work; one on clay-modeling; one on metal-working; and one on art. In addition to these, a page of references to articles in former volumes of the Yearbook, dealing with expression, is given.

One may add the comment that the introductory article is a very interesting interpretation of Colonel Parker's teachings regarding activities in the school and regarding the nature of movements. The rest of the volume contains a great deal of illustrative material which will interest teachers who are looking for practical suggestions to aid them in their work.

Social gatherings in schoolhouses must be organized if they are to be successful. The pamphlet prepared by L. J. Hanifan.[1] of West Virginia, will be of large service to anyone in charge of such gatherings in rural schools. It contains a number of detailed programs.

[1] *A Hand Book Containing Suggestions and Programs for Community Social Gatherings at Rural School Houses.* Prepared by L. J. Hanifan. Published under the direction of M. P. Shawkey, state superintendent, Charleston, W.Va.

CLASSROOM METHODS AND DEVICES

Science for Prevocational Boys

The major purpose of the work in science for prevocational boys is not to turn out scientists capable of doing elaborate scientific work, but to create a rudimentary interest in scientific facts and principles; to call attention to and explain the more obvious and simple phenomena which the boys meet in their daily surroundings; to lead the pupils to see that science means the substitution of real knowledge for mere guesswork—the development of rational procedure in the place of the antiquated rule of thumb; to give an idea of the important part which the development of scientific knowledge has played in our modern industrial progress; and to give practice in reasoning and in applying some of the principles of science.

A secondary but important purpose of giving the so-called science work to these children is to utilize their interest in scientific phenomena as a basis for English composition, spelling, drawing, and mathematics. It is believed that the work in science can be organized in such a way as to furnish this correlating principle.

Since only a limited amount of time can be devoted to science, and since the purpose of giving it is slightly different from that which is usually urged for high-school science, for example, it is desirable to note the way in which the subject is presented, especially as the laboratory method is not employed. In defense of the method which is described in the following paragraphs, it may be said that as only four hours a week are devoted to the subject, this brief period would be rather unproductive if divided between laboratory work and classroom instruction. If the time were devoted entirely to laboratory work it is doubtful whether any more would be accomplished. Even if we grant that a few more scientific facts and principles could be learned through laboratory work, the loss incurred by the employment of the proposed method is more than compensated for by the gain in the pupils' ability to

interpret the printed page and to express themselves in writing and in drawing, and, moreover, the work in the shops provides considerable concrete information of a scientific nature. This makes the demand for laboratory work in science less imperative.

A method which has been found successful is to have the pupils study a general science textbook and other supplementary material, and make notebooks which, when completed, constitute illustrated textbooks covering almost the entire work given in the subject. Demonstrations are given by the teacher to arouse interest and to make the work concrete. They are such as can be performed with relatively little apparatus, or at least with such equipment as can be used in an ordinary classroom.

The textbooks are used as reference books and for the purpose of supplementing information given by the teacher during the demonstrations. Multiple copies of direct questions based on the text and on the demonstrations are prepared and each pupil is supplied with a copy. The nature of these questions will be seen from typical illustrations which appear below.

The usual classroom procedure is to begin with the demonstration and to follow this by the reading of the texts and by notebook work guided by the question sheets. When there is no demonstration, the teacher makes an assignment in which he tries to arouse a desire on the part of the pupils to study the text. This is followed by recitation work in which the pupils answer orally the questions on the question sheet. During these oral recitations the slower pupils have an opportunity to profit from the recitations of the brighter ones, and the difficult parts of the text are cleared up for all. Then the lesson is concluded by notebook work.

At this point the character of the question sheets, upon which the notebook work is based, must be described. At first the questions follow the text rather closely and are designed to aid the pupil in mastering the text by focusing his attention on the main thoughts. These questions are so worded as to encourage the pupil to use his own vocabulary rather than the words found in the text. Often they break up the thought of a long and rather involved sentence into several shorter sentences, thus enabling the pupil to get the meaning of the paragraph which was obscured by the

long sentence. Often a question is so worded that its answer involves giving the thought of a whole paragraph. In the early part of the work subordinate questions are placed under these major questions, to assist the pupil in formulating a logical and intelligent answer.

A typical question of the latter kind is the following, which is based upon a paragraph describing how a Fahrenheit thermometer is graduated. The main question and its subordinates follow:

Q. (*a*) How is a Fahrenheit thermometer graduated?
A. Begin: A thermometer is graduated in the following way: Then answer the following:
(*b*) How is the 212° mark found?
(*c*) How is the 32° mark found?
(*d*) How many degrees are there then between the 32 mark and the 212° mark?
(*e*) Now if we want each space between the melting point of ice and the boiling point of water to represent two degrees, how many spaces will there be between the 32° mark and the 212° mark?
(*f*) How long, then, will each space be?
(*g*) How is this length of space made use of?

As the pupils improve in their ability to write in better form, and reach the point where they can dispense with the subordinate questions, the questions follow the text less closely, become less specific and particular in character, and involve the composition of several related sentences, comprising a paragraph. Toward the end of the year's work, outlines are prepared from which the pupils write shorter or longer compositions on scientific subjects.

Correlation between science and drawing is secured by so wording a question that it calls for graphic expression in connection with the answer. Mathematics is correlated with the science by inserting among the questions problems concerning levers, the inclined plane, pulleys, the differential pulley, the wheel and axle, the screw, the lifting jack, gears, the bicycle, the geared windlass, etc. These problems involve the use of the processes of addition, multiplication, division, and subtraction of whole numbers and especially of common fractions and decimals.

Practice in reasoning is afforded by inserting questions and exercises which call for the application of principles found in the

text. As a rule the answers to questions of this type are not found in the book. The following are samples of the exercises of this kind: If you were a track foreman on a railroad, what directions would you give your gang for laying rails in the winter? Why? If you were a lineman for a telephone company, how would you string the wires in summer? Why? How does the boiler-maker take advantage of contraction due to cooling when he rivets boiler plates together?

In some cases, instead of following the above method, the inductive development lesson precedes the study of the text.

While the pupils are studying the texts and answering the questions, the instructor has an opportunity to give individual instruction on points which are not made entirely clear in the demonstration, or which the pupils find obscure in the text. He has also the opportunity of calling attention to mistakes in spelling, sentence structure, punctuation, and erroneous answers; and to make suggestions in regard to figures which the pupils draw.

One feature of the instruction which it is believed accounts largely for its success, and which should be characteristic of all prevocational work, is that the boys are continually encouraged when they show the least interest, accomplishment, or improvement in their work, and are almost never told that they are doing poor or worthless work. Instead they are shown by example how they can improve, and are given the commendation they deserve.

A word must be said in regard to the motivation of the notebook work. In order that ownership of the texts by the boys may not remove the motive for making the notebooks, all the reference books are furnished by the University. The sources of information are numerous enough to prevent the boys from coming to the conclusion that the notebook work could be made unnecessary through the purchase of a textbook. Furthermore, the fact is pointed out that each boy will in reality be compiling a book for himself which will contain information drawn from many sources, the purchase of which would involve considerable expense. Some emphasis is laid on the fact that an attempt will be made to put into the notebooks only the most valuable information, the less valuable and too technical being disregarded. Special emphasis is laid on the

fact that the boys have an opportunity to create something which will be of value to them; which they may exhibit with pride to their parents, if they choose to make it creditable; which will be representative of the work of the class and which, in case of a school exhibit, may be shown with considerable credit to themselves and the class.

Several encouraging results have been obtained. First, there is an added interest in reading about scientific facts, and an added ability to learn facts from the printed page. Second, there is an acquisition of a few fundamental and useful facts. Third, the work develops an interest in, and to some extent an understanding of, the scientific features of industrial processes many of which can be illustrated in the shop work. Fourth, there is acquired by the pupil added ability to express himself in writing and drawing. Fifth, the observation of the simple rules of punctuation and capitalization tends to become habitual, and the pupils become more efficient in the fundamental operations of arithmetic. Sixth, the boys frequently acquire a keen zest in writing and rewriting their notebooks, some of which finally reach a point of genuine excellence.

The following illustrative material is planned to show in a concrete way how a given topic is treated; for example, heat. Under this general heading are given, among others, the following:

Introduction.
General Effects of Heat.
Expansion and Contraction.
Uses of Expansion and Contraction.
Methods of Heating Buildings.
Ventilation.
Methods of Transmitting Heat.
Measuring Heat.
Sources of Heat.

The following questions are selected from a total of 98 questions covering this general topic and are illustrative of the principles which have been described above.

HEAT

A. INTRODUCTION

1. Show how heat and fire do damage every day.
2. Tell how heat is used for good purposes.

B. GENERAL EFFECTS OF HEAT

1. Expansion and Contraction.
   a) Tell how you could prove that heat makes water expand.
      (1) First tell what things you would use.
      (2) Then tell how you would use them.
   b) How could you show that heat makes air expand?
   c) Make up an experiment to show that heat causes expansion.
      (1) Tell first what materials you would use.
      (2) Then tell how you would use them.
   d) How do you think things act when they are cooled?
   e) What in general may we say is the general effect of heat and cold?
2. Exceptions. Heat does not always cause expansion.
   a) Does ice for example expand or contract when heated?
   b) How does water act when cooled from 39 Fahrenheit to 32?
   c) Are there any metals that contract when heated?

C. USES OF EXPANSION AND CONTRACTION

1. How does the blacksmith make use of heat to make iron expand?
2. How does he make use of the contraction due to cooling?
3. How do boiler-makers make use of contraction due to cooling?
4. If you were track foreman on a railroad, what directions would you give for laying the rails in winter? Why?
5. How would you order them to be laid in summer? Why?
6. If you were lineman for a telephone company, how would you string wires in summer? Why?
7. What causes cement walks to hump and crack in summer?
8. How could this be prevented?

. . . . . .

E. METHODS OF HEATING BUILDINGS

1. In early times before stoves were invented, how were buildings heated?
2. Explain why smoke goes up the chimney.
3. Why is the open fireplace a healthful way of heating?
4. In what respect was the stove an advance over the fireplace as a means of heating?
5. What part is played by the draft or inlet of a stove?
6. What harm is done by having the damper of the stove wide open all the time?
7. Which is the better way of heating a building: by stoves or by a hot-air furnace? Give two reasons why you think as you do.
8. Explain by means of a diagram how a hot-air furnace works.
9. Explain by means of a diagram how the hot-water heating system works?
   a) What would you say led to the invention of hot-water heating systems?

b) Draw a diagram of a two-room house with a hot-water boiler in the basement and explain how the water circulates.
c) How does the hot water in the radiators heat the rooms?
d) What does a hot-air furnace do that a hot-water heating system does not do?
e) How is ventilation provided for in connection with some hot-water heating systems?
f) Why is ventilation necessary?
g) In what respects are hot-water systems better than hot-air furnaces?

10. The steam-heating system.
a) Draw the cross-section of a two-room house which is heated by steam and explain how system works.
b) What device is used to prevent boilers from blowing up? Show how it works.
c) In what respects is heating by steam better than heating by hot water?
d) On the other hand what advantages has hot water over steam heating?

11. Make a short summary on the three ways of heating.
Begin: We may summarize on the three ways of heating by saying (*a*) First, give the advantages of the hot-air furnace. (*b*) Then give the disadvantages of the same. (*c*) Third, give the good points of heating by hot water. (*d*) Then tell its weak points. (*e*) Close with a statement of which system you prefer.

. . . . . .

G. METHODS OF TRANSMITTING HEAT

1. Convection.
a) Define convection.
b) How does the Gulf Stream illustrate the transference of heat by convection?
c) Give two more examples of heat transferred by convection.

. . . . . .

2. Conduction.
a) Define conduction.
b) Give two examples of heating by conduction.
c) Define good and poor conduction of heat.
d) Show how poor conductors of heat are made use of.
e) Show how good conductors are made use of.

3. The fireless cooker.
a) Explain the construction of the fireless cooker. (Draw diagram.)
b) Upon what principle did its invention depend?

4. Radiation.
a) Explain radiation of heat.

5. Describe the processes which take place when rooms are heated by steam.

H. MEASURING HEAT

1. Show that while the temperature of a body tells how hot the body is, it does not tell the amount of heat in the body.
2. Tell how heat is measured.
   a) The calorie.
   b) Calculation of number of calories.
   c) The British thermal unit.
   d) Calculation of number of B.T.U.'s.
3. Specific heat.
   a) Introduction.
   b) Definition.
   c) What does the specific heat of a substance tell you?
   d) Give several examples to make this clear.

F. M. LEAVITT
L. A. P. HARMS

UNIVERSITY OF CHICAGO

TESTS IN READING IN SYCAMORE SCHOOLS

KARL DOUGLAS WALDO
Principal, East Aurora High School, Aurora, Illinois

INTRODUCTION

A short time before I became superintendent of the Sycamore Public Schools (in 1909) the Ward Rational System of Reading had been adopted in the first and second grades. Most of the teachers were enthusiastic over the innovation and declared this system to be superior to the old plan of having each teacher work out her own plan of instruction. Soon, however, one teacher became dissatisfied with the character of the subject-matter in the Ward readers, her objection being the lack of interest shown by the children for the reading material offered. She heard W. W. Howe give an exposition of the phonic method developed by him and used at Whitehall, New York; this discussion was before the regular bimonthly teachers' meeting. Soon afterward she asked to be allowed to try that system of reading. This she was permitted to do.

As supervisor, I naturally watched the reading as it was developed through the phonic method and compared it with the work done under the Ward plan and also with the reading of the higher grades which had started their reading with no regular system. With notebook in hand I endeavored to keep a record of the individual work of the three systems for the purpose of comparison. These records were not very satisfactory and were based upon oral reading only, with no attempt to determine the comprehension by the children of the passages read other than that which could be shown by the oral expression.

When I saw how inadequate the comparison, made in this way, proved to be, I looked for some better method of making a record of the work. The attempts of Ayers, Courtis, Thorndike, and others to formulate standard tests suggested the formation of a

plan for more scientific testing of the reading work. I also wished to test the silent rather than the oral reading, for the former is of much greater importance, not only later in school, but in future life.

I have not endeavored in this investigation to formulate a series of standard tests. If this study should prove to be of any help toward that end, however, I shall feel amply compensated for the effort expended. These statistics may be of some help in the study of children's reading habits and may aid in determining future plans for the teaching of reading.

Working from day to day upon the same problems and in the routine of the school it is often difficult to see that the young people have made any distinct increase in efficiency. The results of this test in showing the large progress made in reading during a period less than six months are of great value. Every teacher was delighted with the improvement made and felt rewarded for her efforts. Even the children were pleased at their own increased efficiency and set to work with a will, vowing to do even better in the future.

An example showing how these tests created an interest in the reading work may more clearly show their value as a means of motivation. Miss Finnegan's third grade, one of the places in which the check tests were given, was found to have the poorest average reading ability of all the third grades in the September test (see Table III). It was not planned originally to give her room any test in the spring. She set to work to bring her grade up to standard and asked that her room might be given a test later with the others. A special test with somewhat similar material was arranged for her. She emphasized the reading work and at least once a week asked the children to reproduce in writing an account of what their reading lesson had contained for that day. No set day was used for this exercise, so that the young people never knew when they might be expected to remember and understand all the reading lesson. This written exercise was done in the language period and correlated these two branches of the curriculum. The children were incited to do their best so that the superintendent never again would find them to be the poorest readers. With these third-graders this plan was a success, for the children fell in with the

spirit of competition and soon greatly improved their work. By spring they had made the greatest percentage of increase in reproduction and were up to standard in every way when the tests were given. Miss Finnegan's room is not quite typical of the rest of the rooms, yet it shows how a skilful teacher can use such tests to improve the work in her room.

The majority of the teachers welcomed such tests, which gave them an opportunity to measure the results of their own work and to compare these results with the work of other teachers and children. An example of the teacher's attitude is shown by the teacher just mentioned, Miss Finnegan, who offered to count, record, and average the words read and reproduced by the children of her room in order that her grade might in the spring be compared with the other third grades.

The weakness of any phonic system of reading usually is found in the tendency to neglect the thought element because of the desire to perfect the mechanics. Such a test measures both elements of the reading much better than could be done by listening to the oral reading of the children, as is usually done in supervision.

These statements show that as a means of supervision and administration tests like this one are of much utility. Some teachers may doubt the value of the superintendent's criticism or may feel that his opinion of the work in their rooms is unwarranted. After such a test there is no need for the superintendent to criticize. The facts found in this test were shown in the bimonthly teachers' meeting and, after discussion, were accepted by the teachers as indicative of the true situation in the reading work. Knowing the situation is the first step in the direction of effective work, and after that is taken both teachers and superintendent can, in cordial co-operation, set about improving the reading work.

DESCRIPTION OF METHOD

The method used in these tests was simple and closely resembled the regular work of the school. Each test took about an hour of school time. No attempt was made to emphasize this work, yet the children seemed delighted with the test and many asked for their record afterward.

The first issue for the year 1913–14 of *Current Events*, a school weekly paper, was used for the tests. This paper is taken regularly by all the children above the fourth grade. However, this issue was not distributed, so that the children never read it except during the two tests. Owing to a mistake the papers were distributed in the eighth grades and were in the possession of the pupils a few hours previous to the test. Not even the teachers knew of the coming test, and as the time was well occupied by the school work only a few of the children in the eighth grade had read any in these papers. Several in each eighth-grade room, when asked whether they had read the paper, replied that they had "looked it over."

A careful description of the method of conducting the tests should be given. The same person gave all the tests and made the directions uniform in all the rooms. After stating to the young people that a reading exercise in the nature of a test was to be given to their room for the purpose of comparison with the other rooms, the papers were distributed face down upon each desk. Then the directions were given that on a signal all were to read silently, beginning with the first column on p. 3, for a period of five minutes, after which they would be examined upon what they had read. A signal to stop would be given, after which each one was to mark the place where he or she finished reading. They were cautioned not to try to memorize figures or reread any of the difficult parts, and were ordered to proceed as they would do in reading any newspaper article in which they might be interested. When all were at attention the signal was given to begin, and for five minutes there was no interruption of any kind while all were reading.

When the signal to stop was given each pupil checked the last word read and wrote his or her name on the paper. Then these were collected. The children were next supplied with paper and were asked to write a complete account of what they had just read. In future references this exercise will be called the word test. They were allowed all the time desired, except in a very few cases where individuals wrote an unusual amount. After these papers were collected a set of ten questions, covering the subject-matter just read, was placed upon the blackboard and the children were asked to answer them briefly. These papers will be referred to as the

percentage test. About two of the columns of the reading were covered by the questions, which might consequently extend over more ground than some had read. If so, each one was directed to answer only as far as he or she had gone in the reading. For instance, if a child read 506 words he would answer or attempt to answer only seven questions. These last papers were graded upon a percentage basis, like regular test work in school. If a pupil read only far enough to answer five questions, each answer counted 20 per cent; while if he read as much or more than was covered by the questions, he could answer all ten questions, each answer being valued at 10 per cent.

The attempts to reproduce an account of what was read, or the word tests, were recorded by counting the total number of words written. So there were two tests of reproduction, one for words reproduced in a narrative form and one graded by percentage on the answers to questions. Thus it will be seen that an attempt was made to measure both the quantity and the quality of the reproduction or comprehension. The percentage basis of judging comprehension was somewhat more satisfactory, in that it is a more common form of rating. In many cases the record of the number of words reproduced means practically nothing regarding the ability of the child in comprehension, for some wrote many meaningless phrases and jumbles of words. Often the phrases written related to other subjects called to mind in some way by the reading material. Others wrote briefly, telling excellently in a few words what was read. In general, however, the number of words reproduced is a fair test of the ability in comprehension. Yet most of the comparison is made on the basis of percentage method of judging the comprehension of the subject-matter read.

The same plan of procedure was used in all the grades except that the third and fourth grades had different material and read in the first test a story of Daniel Boone in Eggleston's *Stories of Great Americans for Little Americans* (American Book Company, 1895), beginning with p. 76.

Late in March, after nearly six months of school work, the second set of tests was given in the same manner. The material was taken from a different page of the same periodical; the matter

was, therefore, different from that used in the fall. The four upper grades read p. 1 instead of p. 3 in the same issue of *Current Events;* while the third and fourth grades read the story of Audubon, beginning with p. 111, instead of the one about Boone. So in all cases the subject-matter was new to all concerned and of about the same relative difficulty. The greater part of the fall test in *Current Events* was an account of some special elections for Congress, while in the spring it consisted chiefly of an article upon the tariff.

Check tests were given to prevent any errors, to show the relative character of the subject-matter, and to enable the experimenter to secure previous experience in their conduction. The check tests were given in a third- and fourth-grade room in the same school system, which room was not included in the later tests, and in the first-year English class in the high school. The same reading material given to the four upper grades in the fall and spring tests was given to this high-school class on consecutive days; and the lower-grade reading based upon the stories of Boone and Audubon were given but a day apart in the third- and fourth-grade room. These tests show the material for the lower grades to be relatively equal in difficulty for reading and comprehending; and the same fact to be true for the upper-grade tests.

TABLE I

SHOWING COMPARISON OF THE TWO CHECK TESTS: PERCENTAGE OF GAIN OR LOSS

	Change in Rate	Change in Reproduction	Change in Percentage of Correct Answers to Questions
Freshmen	+3.6	+ 3.8	+ 42
Fourth grade	+3	+ 0.7	− 4.4
Third grade	−2.4	+186	− 6

Table I shows the percentage of gain or loss as found in the two check tests given on consecutive days. The small percentage of difference in most cases shows the material to have been fairly well selected. As an example, the Freshmen read 3.6 per cent lower, wrote 3.8 per cent more words, and averaged 42 per cent better in the percentage grades on the second test than in the first.

Over half of the children in the third grade made no attempt at reproduction in the first test, which explains the gain there in

word reproduction. This result may have been due to the fact that the children had never been requested to attempt such a thing; for they told the teacher afterward that they did not understand what was wanted.

There was a large increase in the first-year high-school percentage grades in the check test. In this class were ten tuition pupils who said afterward that they were not used to having anyone other than their regular teacher give tests and were consequently confused on the first occasion but "knew better what to do" in the next one. This may account in part for the big gain which the second test shows over the first one. These two records practically are the only places where the check test did not show results which were nearly the same. Better directions and a somewhat different method of approach were gained by the experimenter from this experience with the check tests.

The words each child read were counted and tabulated, together with the number of words reproduced and the percentage grade upon the questions answered. In addition to making the averages for each room and each grade, the mean variation was figured for each child and the records include also the variation from the average, as suggested by Thorndike in his *Manual of Mental and Social Measurements* under the head of "Reliability of Measures." That is, the average mean variation is divided by the square root of the number of cases involved. The medians for each room are also included; and then to make the figures for the reading rate correspond with other experimenters, the result has been expressed in the number of words read per minute.

In order to get a single unit of measurement for comparison of all the grades, the percentage grade was multiplied by the number of words read per minute; for the reading ability depends both upon the rate of reading and the ability to comprehend. The one who can read rapidly and comprehend equally well certainly is a better reader than one whose comprehension is the same, but who reads more slowly.

Table II gives an illustration of the results from the pupils of one teacher, and Table III gives a summary of the results from all the grades which were tested.

TABLE II

THIRD GRADE (MIDDLETON)

	SEPTEMBER						MARCH						GAIN AMOUNT READ	GAIN AMOUNT REPRODUCED	GAIN PERCENTAGE
	Amount Read	Variation	Amount Reproduced	Variation	Percentage	Variation	Amount Read	Variation	Amount Reproduced	Variation	Percentage	Variation			
1	484	34.7	35	8	16	27.5	1,138	409	85	29	45	9.3	654	.....	29
2	80	369.3	90	3	75	32.5	850	121	125	11	35	0.7	770	35	*40*
3	344	105.3	75	18	74	31.5	575	154	190	76	40	4.3	231	115	*34*
4	284	165.3	158	65	35	8.5	714	15	150	36	35	0.7	430	*8*	.....
5	484	34.7	120	27	33	10.5	841	112	105	9	44	8.3	357	*15*	11
6	484	34.7	150	57	33	10.5	732	3	105	9	38	2.3	248	*45*	5
7	1,112	662.7	75	18	40	35.0	850	121	150	36	40	4.3	*262*	75	.....
8	484	34.7	45	48	0	43.5	432	297	70	44	25	10.7	*52*	25	25
9	360	89.3	55	38	48	5.5	742	13	85	29	38	2.3	382	30	*10*
10	484	34.7	80	13	55	11.5	605	124	115	1	33	2.7	121	35	*22*
11	274	175.3	66	27	80	36.5	540	189	75	39	20	15.7	266	9	*60*
Totals	4,874	1,740.7	999	322	489	221.5	8,019	1,558	1,255	319	393	61.3	3,459 *314*	324 *68*	70 *166*
Averages	443	158.2	90.8	29.3	44.4	20.1	729	141.6	114	29	35.7	5.6	286	23.2	*8.7*
Median or variation of average	484	47.9	80	8.9	40	6	732	42.9	105	8.8	40	1.7	.....	.....	.....
Words per minute	886	31.6	.....	.....	.....	.....	145.8	28.3	.....	.....	.....	.....	57.2	.....	.....

FOURTH GRADE (MIDDLETON)

1	360	91.2	63	50.6	56	6	400	288	140	12.8	40	21.4	40	77	16
2	561	109.8	110	3.6	50	0	770	82	90	62.8	40	21.4	209	*20*	*10*
3	782	330.8	115	1.4	90	40	1,040	352	275	122.2	75	13.6	258	160	*15*
4	683	228.8	100	13.6	50	0	850	162	225	72.2	77	15.6	167	125	27
5	643	182.8	132	18.4	25	25	658	30	75	77.8	60	1.4	*15*	57	35
6	882	430.8	215	101.4	85	35	962	274	160	7.2	60	1.4	80	55	*25*
7	714	257.8	65	48.6	50	0	1,165	477	150	2.8	100	38.6	451	85	50
8	450	301.2	40	73.6	0	50	132	456	90	62.8	60	1.4	*18*	50	60
9	484	32.8	115	1.4	50	0	746	58	150	2.8	62	0.6	262	35	12
10	561	109.8	96	17.6	30	20	850	162	265	112.2	50	11.4	289	169	20
11	484	32.8	110	3.6	45	5	744	56	130	22.2	70	8.6	260	*20*	25
12	360	91.2	175	61.4	58	8	473	215	120	32.8	33	6.4	113	*55*	*3*
13	425	26.2	115	1.4	15	35	643	45	123	27.8	70	8.6	218	10	55
14	220	231.2	103	10.6	40	10	300	388	75	77.8	38	23.4	80	*28*	*2*
15	311	140.2	235	121.4	80	30	1,129	441	280	127.2	80	18.6	818	45	.....
16	233	218.2	175	61.4	64	14	870	142	160	7.2	70	8.6	637	*15*	6
17	160	291.2	75	38.6	85	35	240	248	65	87.8	55	6.4	80	*10*	*30*
18	360	91.2	130	16.4	47	3	692	4	170	17.2	55	6.4	332	40	8
Totals	8,573	3,193.0	2,169	645.0	910	316	12,383	3,880	2,705	935.2	1,106	213.8	3,843 *33*	796 *260*	298 *102*
Averages	476.2	177.4	120.5	36	50.6	16.4	688	215.5	152.8	52	61.4	11.8	212	32.3	9.8
Median or variation of average	450	42.2	110	8.5	50	4	692	51.3	140	12.4	60	2.8	.....	.....	.....
Words per minute	95.2	35.5	.....	.....	.....	.....	137.6	43.1	.....	.....	.....	.....	42.4	.....	.....

Figures in italic show loss.

							137.6	43.1					42.4		

Figures in italic show loss.

TABLE III

SUMMARY OF THE RESULTS OF THE SEPTEMBER AND MARCH TESTS

	SEPTEMBER						MARCH						GAIN RATE PER MINUTE	GAIN REPRODUCED	GAIN PERCENTAGE
	Rate per Minute	M.V.	Words Reproduced	M.V.	Percentage	M.V.	Rate per Minute	M.V.	Words Reproduced	M.V.	Percentage	M.V.			
Middleton	88.6	31.6	90.6	29.3	44.4	20.1	145.8	28.3	114	29	35.7	5.6	57.2	23.2	*8.7*
Overocker	70.4	25.2	57	27.7	42	25.1	140.9	35.1	173	38	45.4	8.6	70.5	116	3.4
Haygreen	76.2	25.9	65.5	38.7	47.5	25.3	147.4	45.4	118	43	57	18.1	90.4	52.5	3.5
Third	76.4	27.6	71.1	31.9	44.6	23.5	149.1	36.3	135	36.7	44	10.8	72.7	63.9	*0.6*
Middleton	95.2	35.5	120.5	36	50.6	16.4	137.6	43.1	152.8	52	61.4	11.8	42.4	32.3	9.8
Overocker	82.7	24.5	152.2	47.2	58.1	21.8	157.8	47.3	284.7	87	64.1	15.7	88.8	132.5	5.9
Haygreen	101.3	40.5	128.7	56	61.5	25.3	180.7	51.9	201.3	54.2	57.3	19.8	79.4	72.6	4.2
Fourth	92.7	35.6	133.8	46.4	56.7	21.2	163.3	47.4	212.9	64.4	60.9	15.8	70.2	79.1	6.6
Hopkins	107.2	40.2	37.8	24.5	13.3	14.2	116.8	53.3	76	28.5	25.1	14.3	9.6	38.2	11.8
Van Galder	118.8	58.2	66.6	23.8	19.4	15.2	141.6	46.2	65	25.6	26.1	14.2	22.8	*1.6*	6.7
Fifth	113	49.2	52.2	24.2	16.3	14.7	129.2	49.8	70.5	27.1	25.6	14.3	16.2	18.3	9.8
Clinch	134.1	41.5	52.6	22.6	24.4	15.9	130.9	39.3	89.2	30.5	32.3	11.8	3.2	26.6	7.9
Gross	127.5	39.9	51.6	18.7	29.4	14.2	129.2	47.6	82.9	26.5	37.4	12.7	6.4	31.3	8
Sixth	128	40.6	52.1	20.6	27.1	15	130.1	43.8	85.3	28.4	35	123	2.1	33.7	8
Nilson	131.8	34	81.3	40	46.4	19	144.8	41.8	128	44.4	48.2	15.7	35.5	46.7	1.8
Harrington	125.9	35.9	69.9	36.7	39	20.2	131	44.9	123.1	49.3	48.4	18.4	5.1	53.2	9.4
Seventh	122.7	34.9	75.6	38.8	42.7	19.6	142.8	42.8	125.5	46.8	48.3	17.1	21.8	49.9	5.6
Hall	151.8+	33.9+	112.4	31.8	51.3	18.5	140 +	37.9+	182.2	61.8	62.6	13.5	*1.5*+	69.8	11.3
Chamberlain	149.1+	28 +	120.6	56.6	59.4	22.3	174.1+	42.4+	177	59.4	62.4	14.3	24.9	56.4	3
Eighth	147.2	31	116.5	44.2	55.3	20.4	158.9	40.1	179.6	60.6	62.5	13.9	11.7	63.1	7.1

Figures in italic show loss.

Hall and Chamberlain reversed for figures marked with +.

DESCRIPTION OF RESULTS

Variations in same grade.—One of the most noticeable results is the wide variation within single grades, both in rate of reading and in reproduction. Courtis found this in his test as far as he had gone, but these variations are even greater than those found by him. Table IV, taken from the spring test (Freshmen were excepted, although the work was the same as was taken in the fall), shows this remarkable variation without further comment.

TABLE IV

VARIATIONS WITHIN SAME GRADES

GRADES	RATE OF READING		WORDS REPRODUCED		PERCENTAGE GRADES	
	High	Low	High	Low	High	Low
Freshmen	1,014	399	260	85	100	27
Eighth grade	1,720	233	425	60	98	29
Seventh grade	1,365	233	275	17	100	0
Sixth grade	1,105	185	180	35	90	0
Fifth grade	1,545	233	160	0	68	0
Fourth grade	1,736	110	450	65	100	30
Third grade	1,183	356	280	70	85	10

TABLE V

VARIATIONS IN DIFFERENT GRADES

Percentage of Children in Lower Grades Doing Better Work than Those in Upper Grades

	THIRD GRADE EXCEEDING FOURTH								
	Rate			Words Reproduced			Percentage		
	35.1			10.8			13.5		
	UPPER GRADES								
	Rate			Words Reproduced			Percentage		
	6	7	8	6	7	8	6	7	8
Fifth grade	42.6	36.1	29.5	24.6	8.2	0	26.2	13.1	0
Sixth grade	.....	35.5	29.4	.....	15.7	2	.....	15.7	4
Seventh grade	.....	.....	27.7	.....	.....	14.8	.....	.....	24.1

Table V, taken from the pupils' spring test, shows another phase of the variation, namely, that of individuals in different

grades. It will be seen from this table that many children in lower grades excel their schoolmates in higher grades. Thus 29.5 per cent of the fifth-graders excel the average rate in reading of the eighth grade; 36.1 per cent of them excel the seventh-grade average, and 42.6 per cent excel the average for the sixth grade.

In reproduction there are smaller numbers of children who are superior to those of higher grades; but sixteen children, or 26.2 per cent, excel the average of the sixth grade; and but eight, or 15.7 per cent, exceed the seventh-grade average, and none are superior to the eighth. Other interesting comparisons may be found by a study of the table.

Need for standardized material.—This test clearly shows one fact: that it is not possible, in a test of this kind, where two different passages are used, to compare all grades with each other; for with two different kinds of reading material it is impossible to get a relative comparison for the grades which read different matter. Comparisons can be made, therefore, in this case only within the two groups. This is shown by the table giving the summary for all grades (Table III), where it will be seen that the fourth grades exceeded the fifth, sixth, and seventh grades, not only in the rate of reading, but in the number of words reproduced and in the percentage grades for comprehension. Of course, this is caused by the difference in reading material.

Improvement from lower to upper grades.—One would expect to find an increase both in speed and reproduction from the lower grades to the higher. This increase is not shown fully in this test because of the difference in the material, as has already been pointed out. However, increase of ability in general is shown in most cases, though there are a few exceptions. The rate of speed, ability in reproduction as measured by words, and the comprehension measured by percentage marks, for both the fall and spring tests, are easily deducible from the tables. One notices the regularity of the improvement from grade to grade in quality of comprehension. It is very striking, on the other hand, that in the reading rate there is little increase after the fifth grade. Courtis found the same fact for careful reading in the one school which he has reported in the April, 1914, number of the *Elementary School Teacher*.

These figures show that the lower grades are very important in the development of reading, for there were made the greatest gains in the mechanics of reading. The third and fourth grades nearly doubled their reading rates from September to March. In ability to write the story about what was read the third grade nearly doubled in efficiency, while the fourth grade increased about 50 per cent. The tables show a great increase in composition and comprehension everywhere except in one fifth-grade room, where there was a slight loss.

TABLE VI

SHOWING PERCENTAGE INCREASE OF THE SPRING TEST IN THE READING RATE

Grade	Fall Rate	Spring Rate	Percentage of Increase
3	76.4	149.1	95.2
4	92.7	163.3	76.1
5	113	129.2	14.3
6	128	130.1	1.2
7	122.7	142.8	16.4
8	147.2	158.9	8

As shown in Table III, the third grades declined in the percentage grades in the second test, owing to a heavy loss in one room, which was not overcome by the slight improvement made in the other two rooms. The loss, however, was but six-tenths of 1 per cent. This was the only grade in which the average efficiency in comprehension decreased between the fall and spring tests. One fourth-grade room had a poorer average, but it was offset by the other two fourths, which showed marked improvement. One sixth grade and one of the eighth grades read in the spring at a slower rate than they did in the fall, showing an average loss of 3.2 words per minute and 1.5 words per minute, respectively. These were the only rooms in which there was any loss in rate or comprehension.

Table VII, based upon the product of the rate of reading in words per minute times the percentage grade, shows this great improvement clearly. All the grades increased materially. One room, an eighth, showed a lower efficiency in the spring than in the fall, but the other eighth increased more than enough to make the average, for the whole grade showed an increase.

Comparison of the different systems of teaching reading.—All the children below the sixth grade started with the Ward system of reading, except about one-half of Miss Middleton's third-grade room, which had the Howe system. One reason for putting the

TABLE VII

SHOWING READING ABILITY BASED UPON A SINGLE INDEX, THE PRODUCT OF THE RATE TIMES THE PERCENTAGE GRADE

	Fall	Spring	Gain
Third grade—			
Middleton	39.4	52.1	12.7
Overocker	29.6	64	34.4
Haygreen	36.2	75.2	39
Average	34.1	65.6	28.5
Fourth grade—			
Middleton	48.2	84.5	36.3
Overocker	48.1	101.2	53.2
Haygreen	76	103.5	27.6
Average	54.6	99.5	44.9
Fifth grade—			
Hopkins	14.3	29.3	15.1
Van Galder	23	37	13.9
Average	18.4	33.1	14.7
Sixth grade—			
Clinch	32.7	42.3	9.6
Gross	37.2	48.3	11.1
Average	34.7	45.5	10.8
Seventh grade—			
Nilson	50.6	69.8	19.2
Harrington	49.1	63.4	14.3
Average	52.4	68.9	16.5
Eighth grade—			
Hall	76.5	111	34.5
Chamberlain	90.2	87.4	*2.8*
Average	81.4	99.3	17.9

Figures in italic show loss.

rather difficult reading material offered in the *Current Events* down so low in the grades was for the purpose of comparing the fifth and sixth grades upon the same reading material; the former learned to read by a severe phonic system (the Ward), while the latter was taught to read by whatever plan the teacher chose to develop. The figures for these two grades show a relation quite similar to the relations of the other similar grades; so that it is impossible to

draw any conclusion regarding the relative merits of the two different plans for starting the reading work. In other words, there seems to be no more difference between a fifth grade which has had the Ward method and a sixth that has not than there is between the sixth grade and the seventh, neither of which has had the phonic system.

It will be seen that the third-grade children who learned to read by the Howe method did the best reading work in the fall test, 39.338 being its single-index measurement, compared with 29.40 and 34.07 for the other third-grade rooms; while in the spring test it had lost its leading position, scoring 52.05, which put it into third place, for the other figures totaled 75.174 and 63.969. This cannot be attributed to the Howe method entirely, for the teacher in that third grade, although she tried to work both systems, did not carry on the drills as thoroughly as she might, being more interested in the Ward method. Here was clearly shown the loss occurring in a single system when different plans of work are carried out in the same grade. Miss Middleton, the teacher, explained this weakness of her grade by the fact that she had a fourth grade in the room at the same time which was twice as large as her third and somewhat backward. In trying to bring this fourth grade up to standard, she thinks that she might have neglected the third grade somewhat.

Effect of tests.—The children in the spring about reach the plane of development which the grade above them had at the beginning of school in the fall. There should perhaps be some correspondence between spring tests of the grade below and the fall tests of the grade above. Attention should be drawn to two facts which complicate the comparison: that the spring test was given about three months before the close of school, and that the upper-grade children in the fall test were on an average about six months older. With these facts in mind, one would expect the children of the greater maturity, who had had three months more of school work, to do much better work than their younger rivals. In the fall, however, these older children had just returned from their vacations and doubtless lost somewhat in efficiency from the lack of regular school reading exercises.

In the majority of cases the lower-grade record exceeds that of the grade above in spite of the lack of maturity. This probably is due to the stimulus caused by the test and bears out Woodworth's conclusion in his report, found in the *Proceedings of the Mental Hygiene Conference and Exhibit for 1912*, on p. 217, where he urges the value of such tests to prevent dawdling over the school tasks. The apparent superiority of the fourth over the fifth grade is due to the difference in the character of the subject-matter read and is not real. This superiority of the lower grade does not show in the percentage tables nor in the single-index measurement. The latter, however, is largely determined by the former. In speed and word reproduction there is but one place where the younger children did not do better, and that is in the eighth grades, where, as has been before mentioned, some of the children in the fall had seen the paper in advance.

These results furnish a good argument for the value of regularly conducted tests in reading, although the evidence shows that ability in comprehension is less easily stimulated in this way than is the reading rate. Yet by increasing the reading rate, which can be done without any loss in comprehension, the pupils in general would be much stronger readers.

TABLE VIII

SHOWING SINGLE-INDEX RATING

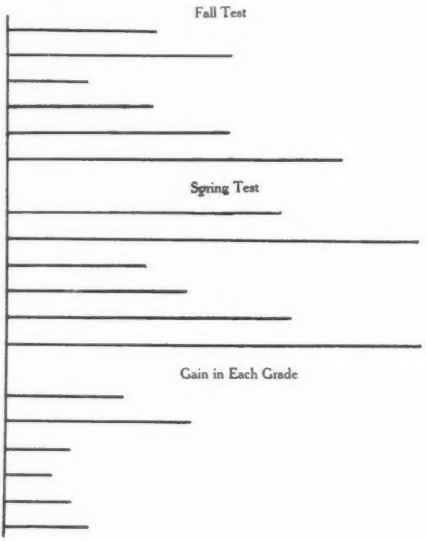
Gain by Grades for September and March	Words Read per Minute	Words Reproduced	Percentage Reproduced	Single-Index Rating
Third, spring test	149.1	135	44	65.6
Fourth, fall test	92.7	133.8	56.7	54.6
Fourth, spring test	163.3	212.9	60.9	99.5
Fifth, fall test	113	52.2	16.3	18.4
Fifth, spring test	129.2	70.5	25.6	33.1
Sixth, fall test	128	52.1	27.1	34.7
Sixth, spring test	130.1	85.3	35	45.5
Seventh, fall test	122.7	75.6	42.7	52.4
Seventh, spring test	142.8	125.5	48.3	68.9
Eighth, fall test	147.2	116.5	55.3	81.4

Table VIII and Chart I present a summary of the gains in efficiency from the fall to the spring tests for each grade taken as a whole.

The conclusion to be drawn from Table VIII is that speed and ability to reproduce words are more easily stimulated by tests than the real mental development, if such be measured by the percentage marks. However, it seems to the writer to be a good argument for holding such tests, for it gives a goal toward which to work, for

CHART I

GRAPHIC REPRESENTATION OF THE FACTS PRESENTED IN TABLE VIII



both the children and teachers, and tends to do away with the dawdling over the reading tasks. Altogether it is a safe conclusion from all these statistics to state that the real comprehension depends more largely upon regular mental development and is less easily stimulated than the rate.

Relation of speed to comprehension.—The work previously quoted of Quantz, Abell, and others interested the writer in an attempt to find the correlation between the reading rate and the comprehension. No definite result can be stated, but it would seem that the rapid readers usually are strong in comprehension,

although there are many exceptions. The high-school Freshmen show the most correlation, but that is far from perfect. Of course it must be borne in mind here, as has been pointed out before, that high speed with an equal percentage of reproduction represents much higher general efficiency than a lower speed with the same reproductive ability. That is, the boy who reads a thousand words in five minutes and reproduces 50 per cent of it has a much higher reading efficiency than the one who reads but five hundred words with the same power of comprehension. So a rapid rate is greatly to be desired, and being more open to stimulus it can be secured by special emphasis, such as tests of this kind.

SUMMARY

The conclusions drawn from this study are not stated dogmatically and may have to be altered, should further investigation be made. However, the author believes the following conclusions are justified by the evidence developed:

Great variation exists in reading ability between different individuals in the same grade, and many children in lower grades are much better readers than the average of the upper grades.

In developing a standard reading scale to show the relative efficiency of different grades it will be necessary to use the same subject-matter for all grades, or else the materials should be so standardized that their relative difficulty is known and can be used in judging the results, or else there should be some overlapping tests.

In careful reading the rate increases but slowly in school work after the fifth grade. The increase in comprehension, however, increases regularly from the lower to the upper grades.

The third and fourth grades are places with the possibilities for wonderful development, especially in the mechanics of reading. The effects of starting the reading with a phonic system like the Ward are not evident in the reading of the upper grades. Tests tend to stimulate the work in reading, but have more effect upon the reading rate than upon the ability to comprehend what is read.

No definite conclusions were obtained upon the correlation between speed and comprehension; yet it is safe to say that an

increase in the rate of reading does not decrease ability in comprehension.

BIBLIOGRAPHY

Abell, Adelaide, "Rapid Reading, Advantages and Methods," *Ed. Rev.*, VIII (1894), 283.

Bowden, Josephine H., *Learning to Read.* Doctor's Dissertation, University of Chicago, 1911.

Brown, H. A., "Measurement of the Efficiency of Instruction in Reading," *Elem. Sch. Teacher*, XIV (1914), 477–90.

Courtis, S. A., "Standard Tests in English," *Ibid.*, 374–92.

Dearborn, W. F., "Psychology of Reading," *Columbia Contributions to Philosophy and Psychology*, XIV, No. 1 (1906).

Huey, E. B., *Psychology and Pedagogy of Reading.* New York, 1909.

Judd, Charles H., "Reading Tests," *Ibid.*, 365–73.

Quantz, J. O., "Problems in Psychology of Reading," *Psych. Rev.* (Mon. Supp.), 1897.

Reudiger, "Field of Distinct Vision," *Columbia Contributions to Philosophy and Psychology*, XVII, No. 1 (1907).

THE USE OF AN OBJECTIVE SCALE FOR GRADING HANDWRITING

HERSCHEL T. MANUEL
Greencastle, Indiana

For the last few years a great deal of attention has been given to the problem of educational measurement. Attention has been called repeatedly to the need for objective bases for the evaluation of school products. As a result of this movement a number of objective scales designed to furnish such bases have been published. These published scales have in turn furnished an opportunity for experimentation and test from which a better understanding of the general problem is emerging. The writer has been engaged in a study of the Ayres Measuring Scale for Handwriting (Russell Sage Foundation, New York City, 1912) from the viewpoint of the variability in the grades assigned to the same writing when the scale is used. It is the purpose of this article to report very briefly some of the main results of this study and their apparent implications for the problem above mentioned.[1]

The Ayres scale, it will be remembered, consists of reproductions of samples of school handwriting arranged in order of quality on the basis of legibility and assigned certain numerical values. In all, twenty-four different specimens of handwriting are used. These are arranged in eight groups of three specimens each and printed on a rectangular sheet of heavy paper. Above the groups appear the numbers 20, 30, 40, ... 90, respectively. These numbers indicate the comparative value of the writing displayed below them. The legibility of the samples was determined by actual timed readings of a number of paid investigators reading a

[1] The writer acknowledges with thanks his indebtedness to a large number of different persons, whom space forbids to mention by name, in the study underlying this article. Special thanks are due to Dr. Frank N. Freeman. For a fuller discussion of the investigation see the Master's essay by the writer in the library of the University of Chicago.

large number of samples of elementary-school writing. The grading of handwriting by the use of the scale is simply a matter of comparison of the sample being graded with the samples on the scale, and the giving of an appropriate numerical value in terms of the values appearing above the specimens on the scale. The directions on the scale are very simple: "To measure the quality of a sample of handwriting slide it along the scale until a writing of corresponding value is found. The number in black at the top of the scale above this represents the value of the writing being measured." For purposes of this discussion the expression "to measure the quality of" may be considered synonymous with the phrase "to grade."

The investigation has consisted of the collection of a fairly large number of handwriting grades assigned by different persons working under various conditions and of a study of the variability among them. It has been the intention to use the grades of such persons as might be expected to use the scale in practical work and yet who have had no training in its use other than independent practice. Neither the number of papers graded nor the number of graders contributing to these results in the different parts of the investigation can be detailed here. It will be sufficient to state that the grades of a total of more than a thousand papers are used and that more than two hundred persons contributed to the grading, grading sets varying from eight papers to one hundred and seventy-six, some with the scale and some without and some by both methods.

Briefly stated, the direct conclusion from the investigation is that miscellaneous graders vary rather widely in their use of the Ayres scale when their only training in its use is independent practice. Table I shows how extreme this variability may be among persons presumably expert in their judgment of handwriting. The table shows the grades of eight samples of writing (numbered 1–8) given by three supervisors of writing using the Ayres scale. The figures at the bottom represent scale values. The figures above are the identification numbers of the samples graded and are placed above the values given. Each row represents the grading of one of the three supervisors. The table

should be read as follows: One judge rated paper No. 2 at 20 on the Ayres scale, a second judge at 40, and the third at 75. The same judges rated paper No. 4 at 20, 30, and 50, respectively.

TABLE I

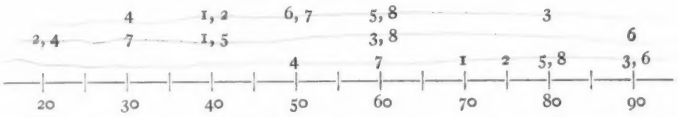


Fig. 1 shows graphically the distribution of values given to paper No. 6 of this series by nineteen members of a class in experimental education after considerable practice with the scale. The heights of the columns represent the percentage of the number in the group (19) assigning the Ayres-scale values indicated below. The second part of the figure gives for comparison the average values of handwriting in the various school grades as proposed by Dr. Frank N. Freeman for tentative standards (*Elementary School Teacher*, XIV, 170).

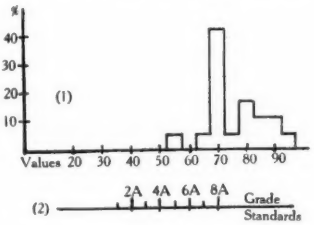


FIG. 1

The characteristic distribution of the grades assigned to separate papers graded in a series is illustrated in Fig. 2. The same eight papers as appeared in Table I are the basis of the grades here represented. The first part of the figure shows the characteristic distribution of values by one hundred eighteen persons, most of whom were relatively unfamiliar with the scale; the second part by a group of nineteen after practice with the scale and after a suggestion of the possibility of using 5's as well as 10's in the grading had been given; the third part by a group of sixty-five grading the papers by the ordinary school method of grading, i.e., on the basis of the advancement of the pupils producing the writing and the passing-grade of the school. The heights of the columns represent, as in Fig. 1, the percentage of the number in the group assigning the values indicated below. The values are indicated in terms of deviations from a middle value. In the first two

parts of the figure the middle value taken is a multiple of ten lying near the median of the distribution of the grades given by the various graders in the group, and in the third part the middle values are multiples of five lying near the median. Suppose, for example, in a group of six graders three give the value 70, two 80, and one 60. The middle value in this distribution would be taken as 70. The table would show then that 50 per cent of the graders assigned a value deviating from the middle value by 0, $33\frac{1}{3}$ per cent by 10, and $16\frac{2}{3}$ per cent by -10. It will be observed that the same absolute differences in grades are represented by longer differences on the base line in the third part of the figure than in the other two parts. This change of scale is made to enable one to make a direct comparison of the real significance of the distributions and is made necessary by the fact that the same absolute differences in the two methods of grading form different proportionate parts of the ranges of values used in each.

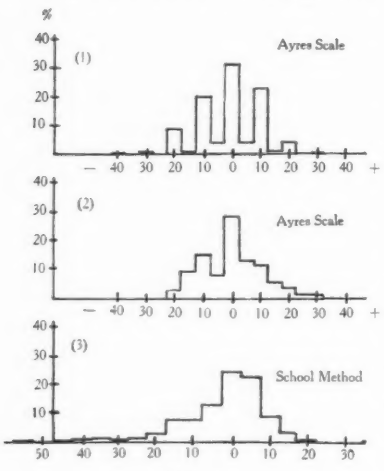


FIG. 2

The curves in Fig. 3 represent the Ayres-scale grades of the writing of two schools of the same city as assigned by two different persons, the same two persons grading each school. The figures at the left indicate the values given to the papers of the school grades indicated below. The grades are based upon from twenty-three to twenty-six papers from each grade. The dotted line represents the grades of one grader and the unbroken line those of the other.

So much by way of illustration; a summary of some of the leading facts brought out by the study follows.

With reference to the variability of the grades of the separate papers of a series it has appeared that:

On the average the chances are more than one in two that two graders after practice in the use of the scale will assign values to the same paper differing by 10 or more, and more than one in six that the values will differ by 20 or more.

The average deviation of the grades of individuals from the group average in grading a single paper with the scale may be as low as 3 or as high as 11.

In general the grades of the same individual at different times may be expected to vary about one-half as much as do the grades of different individuals.

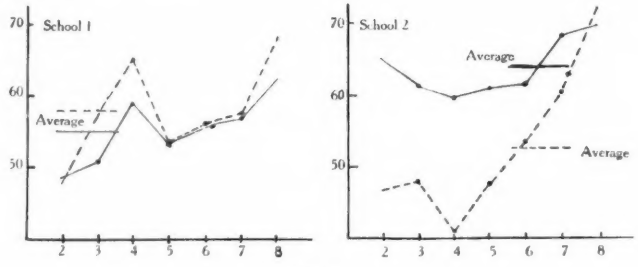


FIG. 3

In general there is a greater variability in the absolute values assigned to writing by the ordinary school method of grading than in those assigned on the basis of the scale. This variability is more marked on the papers that are judged to be below passing.

From the viewpoint of variability the scale appears to have little or no superiority over the other method of grading as a means for finding the relative rank of papers.

With reference to the average grades of series of papers such as are used in comparisons of the writing of groups it has appeared that:

A difference of as much as 10 (a full step on the Ayres scale and twice the difference between the averages of the writing of two successive school grades as shown in Fig. 1) in the averages assigned to a series of twenty-five papers by different persons after practice is common.

In terms of deviations from group averages the variability in the use of the school method is about three halves as great as that

in the use of the scale, and the variability in the use of a subjective scale in which only the zero and one-hundred points are defined almost twice as large as the Ayres-scale variability.

Independent practice in the use of the scale without instruction or exchange of experience may not be expected to reduce the variability if 5's as well as 10's are used in the grading from the first.

The deviation of an individual from a group may be radically modified by experience, but two gradings of the same papers by the same person close to each other in point of time and unmodified by special experience with reference to the grading of handwriting tend to be, from the viewpoint of averages, approximately the same.

The deviation of the average given by a single individual from the group average may be quite different for different sets of papers.

The obtaining of and use of a "personal equation" for correcting the grades of various individual graders that the results of their work may be directly compared require elaborate tests and carefully controlled conditions as to the character and number of the samples graded and the time and experience in grading that intervene between the various gradings used. The evidence at hand does not indicate that such "personal equations" will be generally useful in work with the scale.

In comparisons of the averages of the grades of sets of twenty-five papers graded by different persons any real difference in quality should not be assumed unless the difference in the averages is as much as $7\frac{1}{2}$, three-fourths of a step on the Ayres scale.

In comparisons of the writing of various schools based on the averages of sets containing not to exceed twenty-five papers from each grade from grades two to seven, if the grading is done by different persons using the Ayres scale, any real difference in quality should not be assumed unless the difference in the averages is as much as 5, one-half step on the Ayres scale.

In averages of twenty-five papers given by different groups of four graders each differences less than 5 should not be considered as representing real differences in quality without information as to the characteristic grading of members of the groups.

Such are the facts; what do they mean? The opponent of attempts at exact measurement in education will be inclined to

say, "I told you so! Scales may be all right for the *theorist,* but they have no value for the *practical* man." Another who would be unwilling to go quite so far may say, "No, the fundamental idea of scales is sound, but I never did believe that this particular scale is a good one." Still another who views with grave doubts the ability of the ordinary school man to do anything well may say, "It is merely an evidence of the gross inability of those who did the grading." It would, however, be a long jump indeed to the conclusions just quoted from the real net result of the investigation, viz., that miscellaneous graders vary rather widely in the use of the Ayres scale when their only training in its use is independent practice. The real significance of the results, it appears, is twofold: first, they furnish experimental data for the interpretation of the results when the scale is used under the conditions described in this experiment, and in the second place they furnish a basis for a clearer understanding of the general problem of the scale in educational measurement. The first of these is sufficiently clear from the results themselves; the second will justify some further discussion.

It will hardly be necessary to say anything in support of evaluation as a factor in the work of the schools. Very few, I suppose, would deny that some estimate of the results of educational practice is desirable. Indeed, the absence of all evaluation in school work would set that field off in opposition to all of the rest of human life, which is characterized everywhere by implicit or explicit judgments of value.

Grading is a form of evaluation. In judging the output of any productive system two considerations arise, expressed by the terms quantity and quality. Grading has to do with the determination of and expression of the latter. Quantity is *one* attribute or aspect of a thing. The quality of a thing is the same as the being of the thing itself—it is a complex of *all* the attributes. The accurate expression of quality in quantitative units necessarily involves the quantitative description of each and all of the separate unit factors which constitute the object the quality of which is being determined. The measurement of quality is a measurement of the unit factors which make the object just what it is. The

determination of the quality, therefore, will vary in difficulty with the number of separate factors to be considered and the difficulty of evaluating them.

Measurement consists in a comparison of the thing to be measured with a standard unit of the same thing. To measure, for example, a linear distance we make a comparison of the distance with a unit of distance, and to measure an angle we use a unit angle. Any such distance or angle may, of course, be employed as a unit, but the advantage of having certain well-established standard units is universally recognized in this field, and such units are employed.

Consider now the measurement of the quality of handwriting. It is clear from the analogy that the measurement must be in terms of a unit of quality, and, of course, any quality may be used as a unit for measurement. To carry the analogy a bit farther, just as the meter is described as the distance between certain transverse lines on a certain bar, so a unit of handwriting may be merely some specimen published so that it will be generally available and named so that it may be referred to conveniently. Suppose in the absence of another name we call the unit for the measurement of the quality of handwriting a "scrib." Then in the expression of the quality of a sample of handwriting we are measuring we should say that the quality is, for example, two scribs, meaning that the quality of the sample measured is twice that of the unit sample.

The difficulty with this form of measurement for the quality of handwriting is that the quality of handwriting is not *immediately* quantitative. The quality of handwriting involves a number of factors, including the slant, the alignment, the legibility, the beauty, etc. The use of a unit of handwriting, therefore, necessitates the isolation and comparison of all the separate factors (except as these may be arbitrarily limited by definition). This complexity makes impractical any attempts to evaluate handwriting in terms of the quality of a single specimen such as described. Instead, scales consisting of a number of samples have been devised. The real unit of measurement is the difference in quality between the successive specimens on the scale, but the quality is expressed in terms of the samples themselves by means of certain identification

symbols (such as the 20, 30, etc., of the Ayres scale), rather than directly in terms of the unit.

Now it is evident that an enumeration of all the separate factors of handwriting would be rather difficult. Moreover, as the number of these to be considered in the evaluation of the writing increase, the difficulty of accurate use of a scale increases. There is still a further difficulty in the impossibility of comparison of the various factors by actual physical superposition or even juxtaposition. It is not strange, therefore, that persons without special training vary in the use of the scale. Consider, for example, how complex the use of a red maple rule with a brass edge would be if all of these factors had to be considered in measuring a table! A truer analogy than measurement of dimensions would be that of the grading of agricultural products.

Several conclusions may now be stated:

1. It is clear that generally accepted standards in terms of which the quality of writing may be determined and expressed are desirable.

2. For practical purposes the publication of samples of handwriting is a serviceable part of the description of such standards.

3. The publication of samples must be accompanied by accurate quantitative descriptions as far as possible in terms of the factors to be considered in the grading. A description of the basis for the selection of the samples will not be sufficient unless it is the same as that to be used in the comparisons involved in the process of grading.

4. Those who use the scale with the purpose of accurate comparisons of results must be technically trained for such work, just as poultry judges, for example, find training necessary. On the other hand, such scales, though used with somewhat different results, will be valuable in ordinary schoolroom practice.

5. The scale itself should be based upon the factors to be considered in the grading.

6. Elaborate efforts to establish a zero of quality in order to have a "perfect scale" analogous to simple physical measures are quite unnecessary. Ideally, any two samples may be taken as fixed points and other samples may be defined in terms of their difference.

7. The definition of samples should be based upon the best available schoolroom practice, rather than upon an attempt to represent a progressive increase in the perfection of various factors which may or may not represent writing in its various stages of growth. The samples on the scale should represent the various degrees of excellence as they actually mature. I am inclined to believe that the factors of production need to be given more weight in the determination of scales, as some have urged. The excellence of a product is not to be determined by a consideration merely of the ratio certain factors bear to the same factors in the finished product, but by a consideration of its general scheme of growth toward that end. Moreover, it is worth while to measure the process as well as the product. In the grading of the product, then, the characteristics of the process should have consideration in the degree that desirable or undesirable features of the process are shown by peculiarities of the product.

8. The next step, therefore, is to determine and to describe in objective terms the characteristics of handwriting as found in the best practice of different systems. This would better be the work of specialists in handwriting who are willing to devote themselves faithfully to this end. On the basis of these studies the essential factors of handwriting could be selected and defined by a representative body of school men. After the objective definition of the grades of writing to be recognized, the number of actual publications known as scales may be as numerous as the different systems of writing, and yet all would have the same foundation, just as many styles of thermometers may read in Fahrenheit units. Such scales will furnish common terms for the discussion of handwriting and at the same time a fairly true picture of the thing it is really worth while to measure—namely, the progressive accomplishment of a pupil toward the acquirement of a certain ability in a particular line of activity. Meanwhile, however, let us realize that we have made progress, and let us make the best use of the tools so far available.

BOOKS RECEIVED

BECKLEY-CARDY COMPANY, CHICAGO

Bow-Wow and Mew-Mew. By GEORGIANA M. CRAIK. Illustrated. Cloth. Pp. 95. $0.30.

Progressive School Classics ($0.05 each):

Longfellow's "Courtship of Miles Standish"
Tennyson's "Enoch Arden"
Longfellow's "Evangeline"
Hawthorne's "Great Stone Face"
Ruskin's "King of the Golden River"
Irving's "Legend of Sleepy Hollow"
Hale's "Man without a Country"
Irving's "Rip Van Winkle"

MACMILLAN, NEW YORK

American Literature for Secondary Schools. By WILLIAM B. CAIRNS, PH.D. Illustrated. Cloth. Pp. 341. $1.00.

Dramatic Readings for Schools. By MARION FLORENCE LANSING. Illustrated. Cloth. Pp. 242. $0.50.

A Handbook of Vocational Education. By JOSEPH S. TAYLOR, PH.D. Illustrated. Cloth. Pp. 225. $1.00.

Stories from Northern Myths. By EMILIE KIP BAKER. Illustrated. Cloth. Pp. 276. $1.25.

AMERICAN BOOK CO., NEW YORK

Business Arithmetic. By C. M. BOOKMAN. Illustrated. Cloth. Pp. 250. $0.65.

Principles of Cooking. By EMMA CONLEY. Illustrated. Cloth. Pp. 206. $0.52.

HENRY HOLT & CO., NEW YORK

A Book of English Essays. Selected and edited by C. T. WINCHESTER. Cloth. Pp. 405.

An English Grammar. By ALMA BLOUNT, PH.D., and CLARK SUTHERLAND NORTHRUP, PH.D. Cloth. Pp. 375. $0.80.

J. B. LIPPINCOTT CO., PHILADELPHIA

Daily English Lessons. Book Two. By WILLIS H. WILCOX, PH.M. Cloth. Pp. 293.

ORANGE JUDD CO., NEW YORK

Farm Animals. By THOMAS FORSYTH HUNT and CHARLES WILLIAM BURKETT. Illustrated. Cloth. Pp. 534.

D. C. HEATH & CO., NEW YORK

First Notions of Geography. By JOHN H. HAAREN, LL.D. Illustrated. Cloth. Pp. 154.

CURRENT EDUCATIONAL LITERATURE IN THE PERIODICALS

IRENE WARREN
Librarian, School of Education, University of Chicago

Baldwin, Bird T. The normal child, its physical growth and mental development. Pop. Sci. Mo. 85:559–67. (D. '14.)

Beard, Frederica. Ethical standards in the high school. Educa. R. 48:444–51. (D. '14.)

Cooley, Edwin G. Bishop Grundtvig and the people's high school. Educa. R. 48:452–66. (D. '14.)

Cooper, Clayton Sedgwick. Domination of athletics. Educa. 35:129–39. (N. '14.)

Cummings, Robert A. A study of defective pupils in the public schools of Tacoma, Washington. Psychol. Clinic 8:153–69. (N. '14.)

Hawes, James Anderson. The collegiate side shows. Educa. R. 48:433–43. (D. '14.)

Hayes, Edward C. Education for personality. Educa. R. 48:475–86 (D. '14.)

Hill, David Spence. Educational research in New Orleans. J. of Educa. Psychol. 5:499–510. (N. '14.)

Keech, Mabel L. House-keeping as a public school study. Educa. 35:164–66. (N. '14.)

Klapper, Paul. Efficiency in class instruction. Educa. R. 48:498–513. (D. '14.)

Phelps, Alice Starkey. What shall we eliminate from the high school course? Educa. 35:140–42. (N. '14.)

Pintner, Rudolf. A comparison of the Ayres and Thorndike handwriting scales. J. of Educa. Psychol. 5:525–36. (N. '14.)

Rapeer, Louis W. Industrial hygiene and vocational education. Educa. R. 48:467–74. (D. '14.)

Sanders, Frederic W. The organization of education. Educa. 35:178–83. (N. '14.)

Shreves, Rolland M. The psychologist in the class room. Educa. 35:152–56. (N. '14.)

Thorndike, Edward L. The foundations of educational achievement. Educa. R. 48:487–97. (D. '14.)

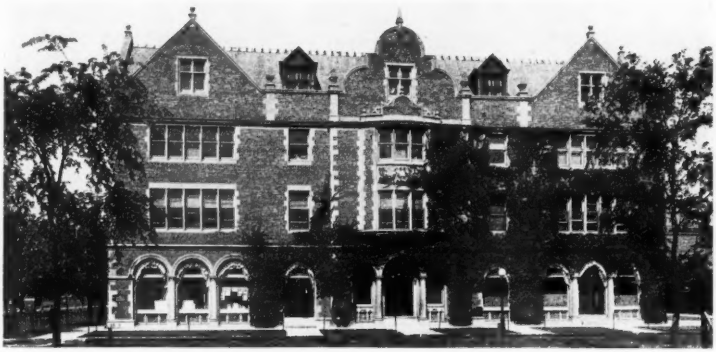
Wallin, Wallace J. E. The hygiene of eugenic generation. Psychol. Clinic 8:170–79. (N. '14.)

Warren, Irene. Teaching the use of books and libraries. Educa. 35:157–63. (N. '14.)

Weiss, A. P. A modified slide rule and the index method in individual measurements. J. of Educa. Psychol. 5:511–24. (N. '14.)

Wyer, James I. Text-books and some others. J. of Educa. (Bost.) 80:427–28. (5 N. '14.)

Recent and Forthcoming Publications of *The University of Chicago Press*—Winter, 1915



THE UNIVERSITY OF CHICAGO PRESS BUILDING

AGENTS

THE BAKER & TAYLOR COMPANY - - - New York
THE CAMBRIDGE UNIVERSITY PRESS London and Edinburgh
KARL W. HIERSEMANN - - - - Leipzig
THE MARUZEN-KABUSHIKI-KAISHA, Tokyo, Osaka, and Kyoto

POSTAL RATES ON BOOKS

On the books listed in this Bulletin, *postage is extra in all cases where postpaid price is not given.* Under the parcel post regulations it is impossible to indicate the postpaid price of publications weighing more than eight ounces. The cost of transportation of such books is now figured at the pound rate, and depends on the distance in zones from Chicago. As an aid in estimating the carriage charges the weight of each book, wrapped for shipping, is given. With this as a basis, the rate on any book from Chicago to the postal zone in which the purchaser resides may be ascertained from the local post-office.

In some cases of great distance from Chicago, it is cheaper to ship by express than by parcel post. Any saving thus made in the expense of transportation is refunded to the customer.

Remittances should be made in Chicago or New York exchange; if local check is used, 10 cents must be added for collection.

Recent and Forthcoming Publications of *The University of Chicago Press*

The Evolution of Early Christianity. By Shirley Jackson Case, Associate Professor of New Testament Interpretation in the University of Chicago.

x+386 pages, 12mo, cloth; $2.25, postage extra (weight 1 lb. 11 oz.)

The beginnings of the Christian movement are here studied from a wholly new point of view. By examining the actual religious situation in which the Christians of the first century lived, the author is able to shed fresh light on many parts of the New Testament. Some of the subjects discussed are Christianity's developmental nature, the importance of environment for Christian origins, the early believers' Jewish connections and the causes of their break with Judaism, their contact with various gentile religions such as emperor worship, Stoicism, and oriental mystery cults, and the ultimate triumph of Christianity.

Water Reptiles of the Past and Present. By Samuel Wendell Williston, Professor of Paleontology in the University of Chicago.

viii+252 pages, royal 8vo, cloth; $3.00, postage extra (weight 2 lbs. 8 oz.)

Professor Williston, who is widely known as a student of extinct reptiles and as the author of *American Permian Vertebrates*, which has now become a recognized authority, presents in this new volume a summary, divested as far as possible of unnecessary scientific details, of our present knowledge concerning the reptiles of the seas, lakes, and rivers of past and present times. While no attempt has been made, save incidentally, to discuss the strictly terrestrial reptiles, twelve of the fourteen orders of the class recognized by the author are treated more or less fully —their structure, habits, geological distribution, etc. Unlike most of the works for the general reader treating of "ancient monsters," the present work is by an author who has spent many years in the field and laboratory in the collection and study of extinct reptiles, upon which he has an international reputation as an authority.

The numerous illustrations, in large part from the pen or brush of the author himself, include not only living types and twenty-four restorations of extinct forms, but also many figures elucidating the structure and habits of the animals.

William James and Henri Bergson. A Study in Contrasting Theories of Life. By Horace Meyer Kallen, of the University of Wisconsin.

xii + 248 pages, 12mo, cloth; $1.50, postage extra (weight 1 lb. 5 oz.)

This volume by Dr. Kallen, of the University of Wisconsin, is a study in philosophic contrasts. It points out how William James and Henri Bergson, although showing certain general tendencies of thought, formulate divergent, and in some respects antagonistic, theories of life and fate. Beginning with a novel critique of the philosophic tradition the book makes clear how, in the conceptions of method, of the nature of reality, of the existence and character of the gods, of the nature and destiny of the human soul, Bergson, with all his originality, merely continues the tradition of transcendentalism, while James in each instance strikes out anew.

This highly interesting and significant book on the relation between the philosophies of William James and Henri Bergson is the work of a man who had the privilege of being a student under both men, and who was chosen by the late Professor James to edit his unfinished work.

The Weather and Climate of Chicago. (*Bulletins of the Geographic Society of Chicago.*) *By Henry J. Cox, Professor of Meteorology, United States Weather Bureau, and John H. Armington, Local Forecaster, United States Weather Bureau.*

xxvi + 376 pages, 8vo, cloth; $3.00, postage extra (weight 3 lbs. 1 oz.)

Of general interest because of its character and authority, this book is naturally of peculiar interest to residents of Chicago and the Middle West. Its importance is indicated by the fact that it is issued under the auspices of the Geographic Society of Chicago, and has been prepared by two of the best known weather experts in the country. It includes discussions of a great variety of subjects, such as temperature, precipitation, atmospheric moisture, cloudiness and sunshine, wind direction and velocity, barometric pressure, and storm tracks; and among

the interesting appendixes to the book are one on the weather of holidays and another containing journal entries relative to the great Chicago Fire of 1871.

The volume contains also a remarkable series of tables with reference to temperature, precipitation, atmospheric moisture, and atmospheric pressure—one hundred and forty-seven in all, with more than one hundred figures and plates.

The Lincoln and Douglas Debates. (*Publications of the Chicago Historical Society.*) *By Horace White.*

With 4 plates. 32 pages, 8vo, paper; 25 cents, postpaid 27 cents

This account of the famous debates is notable because the writer accompanied Mr. Lincoln on his tour of Illinois and reported his speeches. Mr. White's later experience as editor of the *Chicago Tribune* and of the *New York Evening Post* peculiarly qualifies him for setting forth adequately the character and effects of the debates.

The Nation. The pamphlet would be an admirable supplement to any textbook in United States history.

The Problems of Boyhood. A Course in Ethics for Boys of High-School Age. By Franklin Winslow Johnson, Principal of the University High School, University of Chicago.

xxvi + 130 pages, 12mo, cloth; $1.00, postage extra (weight 1 lb.)

This book, prepared by the laboratory method, is the result of the experience of a teacher of boys in the high school, a leader of high-school boys in the Sunday school, and of work with boys of a similar age in Young Men's Christian Association groups. Such topics as Keeping Clean, Habits, Gambling, Betting, Clean Speech, Right Thinking, Sex, Loyalty, Self-Control, and other themes of equal importance are discussed informally and in such a way as to arouse the keenest interest on the part of boys. This long-needed book will be useful, not only in the Sunday school, but in day-school and Association classes. It is the first book in the field to start with a recognition of the boy's point of view.

Graded Social Service for the Sunday School. By William Norman Hutchins.

xii + 135 pages, 16mo, cloth; 75 cents, postage extra (weight 12 oz.)

A highly suggestive discussion of the question as to what may be done in the Sunday school to convert its social teaching from theory into practice. As the outcome of a wide study of present activities the author presents a varied program of possibilities, from which teachers and workers may select according to the conditions in their own schools.

The Sunday-School Building and Its Equipment. By Herbert Francis Evans, Professor of Religious Education in Grinnell College.

xvi + 116 pages, 16mo, cloth; 75 cents, postage extra (weight 12 oz.)

With the modern reorganization of the curriculum of the Sunday school there has come an urgent demand for adequate housing of the school; and the author in this book answers the question as to how buildings should be constructed for Sunday-school use, and how old buildings may be remodeled at a moderate expense. It is the most recent practical discussion of Sunday-school architecture.

Unpopular Government in the United States. By Albert M. Kales, Professor of Law in Northwestern University.

viii + 264 pages, 12mo, cloth; $1.50, postage extra (weight 1 lb. 8 oz.)

This volume by a prominent member of the Chicago bar is an especially timely book, presenting with great clearness and cogency some of the political needs of the country, particularly the necessity of the short ballot. The author defines unpopular government as one of centralized power which is able to maintain itself in the face of popular disapproval. He then points out that the establishment in the United States of state and municipal governments, according to the plan of splitting up the power of government among many separate offices and requiring the widest and most frequent use of the elective principle, has cast so great a burden upon the electorate that an intelligent citizen is reduced to a state of political ignorance inconsistent with self-government. This situation has made it possible, he thinks, for a well-organized hierarchy to acquire the real power

of government and to retain it, in the face of popular disapproval, for selfish ends. Such leaders the author characterizes as "politocrats."

The first part of the volume deals with the rise of the "politocrats"; the second discusses various expedients for restoring the American ideal of democracy; while the third considers constructive proposals like the commission form of government for smaller cities, and the application of the principles underlying this form to larger cities and the state, and to the selection of judges.

Chicago Tribune. Albert M. Kales, Professor of Law in Northwestern University, has written a book which ought to be read wherever citizens are perplexed by the intricacies and distressed by the failures of government.

Masters of the Wilderness. By Charles B. Reed. (Chicago Historical Society, "Fort Dearborn Series.")

xii + 144 pages, 16mo, cloth; $1.00, postage extra (weight 12 oz.)

In reproducing these romantic episodes of our exploration era the author has neither exaggerated the color nor distorted the facts of that intensely human period. The opening essay, which gives its title to the volume, is a highly interesting and carefully wrought account of the origin and upgrowth of the Hudson's Bay Company, with a portrayal of its powerful influence on the development of Canada. "The Beaver Club," the second essay in the volume, is closely allied to the first, and concerns a social club of Montreal, the members of which were drawn from the partners and factors of the Northwestern Fur Company, for many years a rival of the Hudson's Bay Company. For forty years this club dominated the commercial, political, and social life of Canada. The concluding essay, "A Dream of Empire," recounts with many fresh details the adventures of Tonty in Old Louisiana.

The Mississippi Valley Historical Review. The style is narrative and picturesque, and the book as a whole is a valuable contribution to our western history.

The French Verb: Its Forms and Tense Uses. By William A. Nitze and Ernest H. Wilkins, of the Department of Romance Languages and Literatures, the University of Chicago.

40 pages, 8vo, paper; 25 cents, postpaid 28 cents
French Verb Blanks, per pad, 25 cents; postage extra (weight 14 oz.)

This little book prepared by Professor Nitze and Professor Wilkins, of the Department of Romance Languages and Literatures in the University of Chicago, will be of especial interest and value to all students and teachers of French because of the great help it gives in the mastery of the French verb. It is intended to facilitate familiarity with the verb forms and fix them in the student's memory by associating those tenses which are actually related in form. A method of classroom drill is suggested; the table and discussion of tense uses are self-explanatory; and the illustrative material, when quoted, is drawn from standard nineteenth-century writers.

Verb blanks, for the suggested arrangement of verb forms, will be supplied in pads at the prices indicated above.

A Manual for Writers. By John M. Manly, Head of the Department of English in the University of Chicago, and John A. Powell, of the University of Chicago Press.

viii + 226 pages, 12mo, cloth; $1.25, postage extra (weight 1 lb. 6 oz.)
Paper; $1.00, postage extra (weight 1 lb. 2 oz.)

A book designed to aid authors and all others who are concerned with the writing of English. It aims to answer the practical questions that constantly arise in the preparation of manuscripts for the printer, and the correcting of proof, business and social letters, and any sort of composition where correctness of form is an important element.

Many years of experience in authorship, in editorial work, and in the everyday routine of a large business office have fitted the authors of this work to appreciate the difficulties which all classes of writers encounter, and to provide an authoritative answer to the many questions these difficulties give rise to.

The Independent. If writers generally would study this little book, the editor would find half his occupation gone.

Elements of Debating. A Manual for Use in High Schools and Academies. By Leverett S. Lyon.

x+136 pages, 12mo, cloth; $1.00, postage extra (weight 14 oz.)

The aim of the book is to put the well-established principles of the art of debating within the reach of young students. It therefore presents the elements of public speaking so freed from technicality that the student may assimilate them with the least possible interpretation by the teacher.

The book consists of ten chapters and a number of appendices. Each chapter is preceded by an analysis of the subject and followed by a series of suggested exercises. The whole subject is treated in a direct, practical way with the greatest possible clearness, and with illustrations drawn from subjects familiar and interesting to high-school boys. Examples are given of some of the most effective arguments ever written, and a list of suggested topics is added in an appendix.

Education. An admirable manual that will be helpful to the many students in college and high school who wish to fit themselves for public speaking.

Animal Communities in Temperate America. A Study in Animal Ecology. (Bulletins of the Geographic Society of Chicago.) By Victor Ernest Shelford, Assistant Professor of Zoölogy in the University of Illinois.

xiv+362 pages, 8vo, cloth; $3.00, postage extra (weight 2 lbs. 12 oz.)

This volume by Dr. Shelford presents the principles of field ecology, illustrated by the more widely distributed animal habitats of the eastern half of temperate North America, and the aquatic habitats of a much larger territory. Six chapters deal with general principles.

In several chapters animal communities of lakes, streams, swamps, forests, prairies, and various soils and topographic situations are considered from the point of view of modern dynamic ecology. A very valuable feature of the book is the three hundred figures of widely distributed animals chosen to represent the chief types of animal communities and their characteristic modes of life.

Bulletin of the American Geographical Society. This book is unique in that it is a pioneer of its sort and the first serious attempt to treat of the physiology of organisms and of animal communities in such shape as to serve as an adequate text and reference work for students.

THE UNIVERSITY OF CHICAGO SCIENCE SERIES

The University of Chicago Science Series recently established by the Trustees of the University owes its origin to a feeling that there should be a medium of publication occupying a position between the technical journals with their short articles and the elaborate treatises which attempt to cover several or all aspects of a wide field. The volumes of the series will differ from the discussions generally appearing in technical journals in that they will present the complete results of an experiment or series of investigations which have previously appeared only in scattered articles, if published at all. On the other hand, they will differ from detailed treatises by confining themselves to specific problems of current interest and in presenting the subject in as summary a manner and with as little technical detail as is consistent with sound method. They will be written not only for the specialist but also for the educated layman. The size of the volumes will range from fifty to one hundred and fifty pages.

The series is under the editorial management of Eliakim Hastings Moore (Chairman), John Merle Coulter, and Robert Andrews Millikan.

THE FIRST PUBLISHED VOLUME OF THE SERIES

The Evolution of Sex in Plants. By JOHN M. COULTER, Head of the Department of Botany in the University of Chicago. x+140 pages, 12mo; $1.00, postage extra (weight 14 oz.).

In this volume, which is the first of the series to be published, Professor Coulter treats the most important phases of the question of sex in plants. Reducing the amount of technical detail to the minimum, he presents the subject in a way that will be found extremely useful to all interested in problems connected with plant culture. Where the course of the discussion necessitates a certain amount of detail, illustrative figures have been introduced into the text with a view to greater clearness.

OTHER VOLUMES IN PREPARATION FOR EARLY PUBLICATION

The Origin of the Earth. By THOMAS C. CHAMBERLIN, Head of the Department of Geology in the University of Chicago.

The Isolation and Measurement of the Electron. By ROBERT ANDREWS MILLIKAN, Professor of Physics in the University of Chicago.

Finite Collineation Groups. By HANS F. BLICHFELDT, Professor of Mathematics in Leland Stanford Junior University.

PUBLICATIONS OF THE CHICAGO HISTORICAL SOCIETY

The University of Chicago Press has become the publishing and distributing agent for the following books and pamphlets of the Chicago Historical Society:

Masters of the Wilderness. By CHARLES B. REED. (*"Fort Dearborn Series."*) 154 pages, 16mo, cloth; $1.00, postage extra (weight 12 oz.).

COLLECTIONS

Vol. I. *History of the English Settlement in Edwards County, Illinois.* By GEORGE FLOWER. Out of print.

Vol. II. *Biographical Sketch of Enoch Long, an Illinois Pioneer.* By HARVEY REID. 134 pages, royal 8vo, cloth; $1.00, postage extra (weight 1 lb. 8 oz.).

Vol. III. *The Edwards Papers.* Edited by E. B. WASHBURNE. 662 pages, royal 8vo, cloth; $3.50, postage extra (weight 4 lbs.).

Vol. IV. *Early Chicago and Illinois.* Edited by EDWARD GAY MASON. 538 pages, royal 8vo, cloth; $3.00, postage extra (weight 3 lbs. 10 oz.).

Vol. V. *The Settlement of Illinois.* By ARTHUR CLINTON BOGGESS. 268 pages, royal 8vo, cloth; $2.00, postage extra (weight 2 lbs. 6 oz.).

PAMPHLETS

Crown 8vo, paper; 27 cents each, postpaid

The Lincoln and Douglas Debates. By HORACE WHITE.

Early Society in Southern Illinois. By ROBERT W. PATTERSON.

Eleazer Williams. By WILLIAM WARD WIGHT.

The Chicago Common Council and the Fugitive Slave Law of 1850. By CHARLES W. MANN.

Early Days of Peoria and Chicago. By DAVID MCCULLOUGH.

In Memoriam: John Nelson Jewett.

The Boundary Dispute between Illinois and Wisconsin. By WILLIAM RADEBAUGH.

Some Indian Landmarks of the North Shore. By FRANK R. GROVER.

Biographical Sketch of Hon. Joseph Duncan. By E. W. BLATCHFORD.

Biographical Sketch of Hon. John Peter Altgeld. By EDWARD OSGOOD BROWN.

The Old Kaskaskia Records. By CLARENCE WALWORTH ALVORD.

Abraham Lincoln: The Evolution of His Emancipation Policy. By PAUL SELBY.

Chicago Historical Society: 1857–1907. Addresses by EZRA B. MCCAGG and FRANKLIN H. HEAD.

The Indian as a Diplomatic Factor in the History of the Old Northwest. By ISAAC JOSLIN COX.

Father Pierre François Pinet and His Mission of the Guardian Angel of Chicago. By FRANK R. GROVER.

Biographical Sketch of Gurdon Saltonstall Hubbard. By HENRY E. HAMILTON.

The Masters of the Wilderness. By CHARLES B. REED.

The Preamble and Boundary Clauses of the Illinois Constitution. By HERMAN G. JAMES.

FORTHCOMING BOOKS

The Parts of the Body in Old Germanic and Scandinavian. (*Linguistic Studies in Germanic.*) *By Thorild W. Arnoldson.*

Finite Collineation Groups. (*The University of Chicago Science Series.*) *By Hans F. Blichfeldt, Professor of Mathematics in Leland Stanford Junior University.*

Selections from American Prose Literature. By Walter C. Bronson.

The Origin of the Earth. (*The University of Chicago Science Series.*) *By Thomas C. Chamberlin, Head of the Department of Geology in the University of Chicago.*

The Psychology of Religion. (*Handbooks of Ethics and Religion.*) *By George A. Coe.*

The History of the New Testament Canon. (*Handbooks of Ethics and Religion.*) *By Edgar J. Goodspeed.*

Assyrian and Babylonian Letters. Vol. XIV. By Robert Francis Harper.

The Isolation and Measurement of the Electron. (*The University of Chicago Science Series.*) *By Robert Andrews Millikan, Professor of Physics in the University of Chicago.*

Papers of the Bibliographical Society of America, Vol. VIII. Edited by A. C. von Noé.

Great Missionaries of the Christian Church. By A. K. Parker and E. D. Burton.

A Historical Examination of Some Non-Markan Elements in Luke. (*Historical and Linguistic Studies, Vol. II, Part 6.*) *By Ernest W. Parsons.*

Life in Ancient Israel. By Ira M. Price.

Words for Eating and Drinking in Germanic. (*Linguistic Studies in Germanic.*) *By H. O. Schwabe.*

Christian Ethics. By Gerald B. Smith.

A Guide to the Study of Christian Theology. Edited by Gerald B. Smith.

Introduction to Religious Education. (*Handbooks of Ethics and Religion.*) *By Theodore G. Soares.*

PUBLICATIONS IN SERIES

Publications of the National Society for the Study of Education (Formerly the National Herbart Society).

The annual reports (each issued in two parts) contain important papers and discussions on pedagogical subjects, concerning which detailed information will be furnished on request. The Yearbooks for 1895–99, for 1902–6, and for 1907–11 have been bound together, the price of each volume being $5.00, postage extra.

Publications of the American Sociological Society.

Eight volumes of Papers and Proceedings have been issued. Price per volume, $1.50, postage extra.

The School Review Monographs.

This is a series of educational papers issued under the supervision of the editors of the *School Review*. Five numbers, prepared by the Society of College Teachers of Education, have been issued. Price 50 cents each (except Number IV, 25 cents), postage extra.

Philosophic Studies (Edited by James Hayden Tufts).

Four numbers have been issued. Price 50 cents each, postage extra.

Papers of the Bibliographical Society of America.

Eight volumes have been published. Detailed list with prices on request.

The Bulletin of the Bibliographical Society of America.

Now merged with the Papers. Complete sets can be furnished. $1.00 per volume, postage extra.

Historical and Linguistic Studies in Literature Related to the New Testament.

FIRST SERIES: TEXTS (5 numbers published).
SECOND SERIES: STUDIES (14 numbers published).

Proceedings of the Baptist Congress.

The Proceedings for 1903, 30 cents, postage extra. 1904–1912, each volume 50 cents, postage extra.

Annual Tables of Constants and Numerical Data, Chemical, Physical, and Technological. Issued by an International Commission of the Seventh and Eighth International Congresses of Applied Chemistry.

We are distributing agents for this publication in the United States. Full information on request.

Bulletins of the Geographic Society of Chicago.

Numbers 1 and 2 can be supplied at 35 cents and 50 cents respectively; number 3, 75 cents; numbers 4 and 5, $3.00 each. Postage extra in each case.

PERIODICALS

The Biblical World. Edited by SHAILER MATHEWS, with the co-operation of the members of the Divinity Conference of the University of Chicago. Published monthly, with illustrations. Subscription price, $2.00 a year; single copies, 25 cents; foreign postage, 68 cents; Canadian postage, 35 cents.

The School Review. Edited by ROLLO L. LYMAN and other representatives of the School of Education of the University of Chicago, in co-operation with the Society of College Teachers of Education. Published monthly, except in July and August. Subscription price, $1.50 a year; single copies, 20 cents; foreign postage, 52 cents; Canadian postage, 30 cents.

The Elementary School Journal. Edited by the Faculty of the School of Education of the University of Chicago, in co-operation with the Faculty of the Francis W. Parker School. Published monthly, except in July and August. Subscription price, $1.50 a year; single copies, 20 cents; foreign postage, 46 cents; Canadian postage, 30 cents.

The Botanical Gazette. Edited by JOHN M. COULTER. Published monthly, with illustrations. Subscription price, $7.00 a year; single copies, 75 cents; foreign postage, 84 cents; Canadian postage, 35 cents.

The Journal of Geology. Edited by THOMAS C. CHAMBERLIN and ROLLIN D. SALISBURY. Published semi-quarterly, with illustrations. Subscription price, $4.00 a year; single copies, 65 cents; foreign postage, 53 cents; Canadian postage, 30 cents.

The Astrophysical Journal. Edited by GEORGE E. HALE, of the Mount Wilson Solar Observatory; HENRY G. GALE, of the Ryerson Physical Laboratory, University of Chicago; and EDWIN B. FROST, of the Yerkes Observatory. Published monthly, except in February and August, with illustrations. Subscription price, $5.00 a year; single copies, 65 cents; foreign postage, 62 cents; Canadian postage, 30 cents.

The American Journal of Sociology. Edited by ALBION W. SMALL, in co-operation with the officers of the American Sociological Society. Published bimonthly. Subscription price, $2.00 a year; single copies, 50 cents; foreign postage, 43 cents; Canadian postage, 25 cents.

The Journal of Political Economy. Edited by the Faculty of Political Economy of the University of Chicago, in co-operation with the officers of the Western Economic Society. Published monthly, except in August and September. Subscription price, $3.00 a year; single copies, 35 cents; foreign postage, 42 cents; Canadian postage, 30 cents.

The American Journal of Theology. ERNEST D. BURTON, GERALD B. SMITH, and SHIRLEY J. CASE, Managing Editors. Published quarterly. Subscription price, $3.00 a year; single copies, $1.00; foreign postage, 41 cents; Canadian postage, 20 cents.

The American Journal of Semitic Languages and Literatures. Edited by the Faculty of the Department of Semitics, University of Chicago. Published quarterly. Subscription price, $4.00 a year; single copies, $1.25; foreign postage, 26 cents; Canadian postage, 15 cents.

Modern Philology. JOHN M. MANLY, Managing Editor. Published monthly, except in August and September. Subscription price, $3.00 a year; single copies, 50 cents; foreign postage, 45 cents; Canadian postage, 25 cents.

The Classical Journal. FRANK J. MILLER, ARTHUR T. WALKER, and MONROE N. WETMORE, Managing Editors. Published by the Classical Association of the Middle West and South, with the co-operation of the Classical Association of New England. Monthly, except in July, August, and September. Subscription price, $1.50 a year; single copies, 25 cents; foreign postage, 24 cents; Canadian postage, 15 cents.

Classical Philology. PAUL SHOREY, Managing Editor. Published quarterly. Subscription price, $3.00 a year; single copies, $1.00; foreign postage, 23 cents; Canadian postage, 15 cents.

The University Record. Edited in the President's Office of the University of Chicago. Published quarterly. Subscription price, 50 cents a year; single copies, 20 cents; foreign postage, 20 cents; Canadian postage, 12 cents.

Journal of the Association of Collegiate Alumnae. Published by the Association at the University of Chicago Press. Issued in January, March, April, and May of each year. Subscription price, $1.00 a year; single copies, 25 cents; foreign postage, 16 cents; Canadian postage, 8 cents.

The English Journal. JAMES FLEMING HOSIC, Managing Editor. The official organ of the National Council of Teachers of English. Published monthly, except in July and August, at the University of Chicago Press. Subscription price, $2.50 a year; single copies, 30 cents; foreign postage, 45 cents; Canadian postage, 25 cents.

PUBLISHED FOR THE CAMBRIDGE UNIVERSITY PRESS

Biometrika. A journal for the statistical study of biological problems. Edited by KARL PEARSON. Subscription price, $7.50 a volume; single copies, $2.50.

Parasitology. Edited by G. H. F. NUTTALL and A. E. SHIPLEY. Subscription price, $7.50 a volume; single copies, $2.50.

Journal of Genetics. Edited by W. BATESON and R. C. PUNNETT. Subscription price, $7.50 a volume; single copies, $2.50.

The Journal of Hygiene. Edited by G. H. F. NUTTALL. Subscription price, $5.25 a volume; single copies, $1.75.

The Modern Language Review. Edited by J. G. ROBERTSON, G. C. MACAULAY, and H. OELSNER. Subscription price, $3.00 a volume; single copies, $1.00.

The British Journal of Psychology. Edited by CHARLES S. MYERS. Subscription price, $3.75 a volume of four parts.

The Journal of Agricultural Science. Edited by R. H. BIFFEN, A. D. HALL, and T. B. WOOD. Subscription price, $3.75 a volume; single copies, $1.25.

The Biochemical Journal. Edited for the Biochemical Society by W. M. BAYLISS and ARTHUR HARDEN. Subscription price, $5.25 a volume; single copies, $1.75.

The Journal of Ecology. Edited for the British Ecological Society by FRANK CAVERS. Subscription price, $3.75 a volume; single copies, $1.25.

The Annals of Applied Biology. Edited for the Association of Economic Biologists by H. MAXWELL LEFROY. Subscription price, $6.00 a volume; single copies, $2.00.

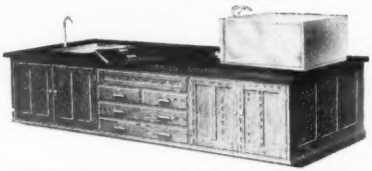
The Annals of the Bolus Herbarium. Edited by H. H. W. PEARSON, Harry Bolus Professor of Botany in the South African College, Cape Town. Subscription price, $3.75 a volume; single copies, $1.25.

NOTE.—Prices on back volumes vary, and postage from London is charged on back volumes and single copies.

The University of Chicago Press has become the American agent for the following scientific journal published by Georg Thieme in Leipzig:

Internationale Monatsschrift für Anatomie und Physiologie. Edited by FR. KOPSCH, Berlin, and R. R. BENSLEY, Chicago. Full information as to dates of issue and prices will be given on request.

For the Instructor in Biology



THIS desk is peculiarly fitted for service in the Biology Laboratory. The storage space is so arranged as to be of the greatest possible usefulness to the instructor. The large cupboards and drawers afford a great deal of convenient store room, and the deep sink, with its 11-inch standing overflow plug, performs the double function of sink and tub. An aquarium is a part of each of these desks, and is a very necessary adjunct to the Biology Laboratory for the maintenance of health specimens.

For Laboratory Furniture of any kind, consult Catalogue F, sent free

Kewaunee Mfg. Co.
LABORATORY FURNITURE EXPERTS
KEWAUNEE, WIS.

NEW EDUCATIONAL BOOKS

The Eskimo Twins

By LUCY FITCH PERKINS

Another geographical reader by Lucy Fitch Perkins, as delightful as her Dutch, Japanese, and Irish Twins. It brings to children a vivid picture of home-life in the Far North, and is so simply written that second-grade classes can read it readily. Fully illustrated. 50 cents net. Postpaid.

Opera Stories from Wagner

By FLORENCE AKIN

Miss Akin here interprets for the child one of the world's literary masterpieces. In simple, conversational style she tells the four stories of Wagner's *The Nibelung Ring*, which weaves into one the strange and beautiful myths and legends of Northern Europe. The book is planned for use in the second and third grades. (To be published in February.)

HOUGHTON MIFFLIN COMPANY
BOSTON NEW YORK CHICAGO

A Graded Guide to
SUPPLEMENTARY READING

Published January, 1915

An illustrated descriptive list of the best approved supplementary reading books for children's libraries. In all respects the best guide to children's library books published.

Contains a complete illustrated list of the books recommended by the School Libraries Division of the Department of Education of New York for purchase by elementary schools.

Sent to District Superintendents, Teachers, and others interested free on request.

THE BAKER & TAYLOR CO.
Wholesale dealers in the books of all publishers
33-37 E. 17th St. NEW YORK CITY Union Square North

GOODE'S BASE MAPS

a series of outline maps for all classes of work in applied sciences and the various fields of research

Prepared by

J. PAUL GOODE

Associate Professor of Geography in the University of Chicago

This series is designed to meet the needs of teachers and students in a wide variety of work with maps. The maps are adapted to the use of classes of every grade, from the university to the common school: in geography, including commercial or economic geography, in physiography, geology, botany, zoölogy, anthropology and ethnology, sociology, economics, politics, and history.

The maps have been prepared by being first drawn on a large scale, to insure accuracy of detail, and then greatly reduced in the engraving. In the quality of the drawing they are superior to most maps used in books and magazines.

In two Sizes

8 x 10½ in., 1 cent each
15 x 10½ in., 3 cents each

No. 1. The World: on Mercator's projection.
No. 2. North America: on an equal-area projection.
No. 3. South America: Sanson's projection.
No. 4. Europe: conic projection.
No. 5. Asia: Lambert's equal area.
No. 6. Africa: Sanson's projection.
No. 7. Australasia: Mercator's projection.
No. 9. America (U.S.): conic projection.*
No. 10. America (U.S.): state outlines only; conic projection.
No. 14. The British Isles: conic projection.
No. 16. Europe, Western and Southern: conic projection.
No. 17. France: conic projection.
No. 18. The Spanish Peninsula: conic projection.
No. 19. Italy: conic projection.
No. 20. Central Europe: conic projection.*
No. 21. The German Empire: conic projection.
No. 24. The Levant: conic projection.*

* Double size not yet ready.

No. 32. America (U.S.): by counties, polyconic projection.

15×10½ inches, No. 32A, 3 cents each.
21×15 inches, No. 32B, 5 cents each.

(Others to be issued later)

When ordering the small or standard size, reference to the map desired should be by the appropriate number in the above list. When the double-size map is desired, the symbol "A" should follow the number. Thus, No. 4 means the 8×10½-inch map of Europe; No. 4A means the 15×10½-inch map of Europe.

THE UNIVERSITY OF CHICAGO PRESS

CHICAGO, ILLINOIS

The Open Court Publications

Were founded in 1887

By EDWARD C. HEGELER

of LaSalle, Illinois

The Open Court

An illustrated monthly magazine devoted to the Science of Religion, the Religion of Science, and the Extension of the Religious Parliament Ideas

$1.00 a year. Single copy 10 cents

The Monist

A quarterly magazine devoted to the Philosophy of Science

$2.00 a year. Single copy 60 cents

Books on Sciences

A. Theory, Evolution, Anthropology, Biology, Psychology, General Philosophy of Science
B. Mathematics and Geometry
C. Physics

Books on Religions

A. History of Religions, Comparative Study of Religions
B. Philosophy of Religion
C. Devotional and Literary Works
D. Spiritualism, Magic and Myths

Books on Philosophies

A. History, Reprints and Translations of Classical Works
B. Modern Philosophical Works
C. Ethics, Education, Economics
D. Aesthetics, Literature, Art

Catalogue and Sample Copies Sent Free on Request

DR. PAUL CARUS, Editor and Manager

The Open Court Publishing Company

122 South Michigan Avenue
Book Room 1001, People's Gas Building
Chicago, Illinois

Also
149 Strand
London, W.C., England

IMPORTANT EDUCATIONAL BOOKS

The Unfolding of Personality as the Chief Aim in Education
By H. Thiselton Mark
224 pp., 12mo, cloth; $1.00, postage extra (weight 14 oz.)

The School and Society
By John Dewey. Supplemented by a statement concerning the work of the University Elementary School
130 pp., 12mo, cloth; $1.00, postage extra (weight 14 oz.)

Literature in the Elementary School
By Porter Lander MacClintock
x+306 pp., 12mo, cloth; $100, postage extra (weight 1 lb. 8 oz.)

Ethics in the School
By Ella Flagg Young
44 pp., 12mo, paper; net, 25 cents; postpaid, 27 cents

Isolation in the School
By Ella Flagg Young
112 pp., 12mo, paper; net, 50 cents; postpaid, 54 cents

The Place of Industries in Elementary Education
By Katharine Elizabeth Dopp. With frontispiece.
viii+270 pp., 12mo, cloth; $1.00, postage extra (weight 1 lb. 6 oz.)

The Psychology of Child Development
By Irving King
xxii+266 pp., 12mo, cloth; $1.00, postage extra (weight 1 lb. 6 oz.)

The Elementary Course in English
By James Fleming Hosic
x+150 pp., 16mo, cloth; 75 cents, postage extra (weight 14 oz.)

A Critical Study of Current Theories of Moral Education
By Joseph Kinmont Hart
vi+48 pp., royal 8vo, paper; net, 50 cents; postpaid, 54 cents

Some Types of Modern Educational Theory
By Ella Flagg Young
70 pp., 12mo, paper; net, 25 cents; postpaid, 28 cents

THE UNIVERSITY OF CHICAGO PRESS
CHICAGO - - - - - - - ILLINOIS

L

he

S
IS